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**STATE OF NEW MEXICO**
**ENVIRONMENTAL IMPROVEMENT BOARD**

**IN THE MATTER OF PROPOSED NEW REGULATION,**
**20.2.50 NMAC – *Oil and Gas Sector – Ozone Precursor Pollutants*** **No. EIB 21-27 (R)**

**ENVIRONMENTAL DEFENSE FUND, CONSERVATION VOTERS NEW MEXICO, DINÉ C.A.R.E., EARTHWORKS, NATIONAL PARKS CONSERVATION ASSOCIATION, NATURAL RESOURCES DEFENSE COUNCIL, SAN JUAN CITIZENS ALLIANCE, SIERRA CLUB, 350 NEW MEXICO, 350 SANTA FE, CENTER FOR CIVIC POLICY, NAVA EDUCATION PROJECT, AND NEW MEXICO ENVIRONMENTAL LAW CENTER'S**
**JOINT PROPOSED STATEMENT OF REASONS**

Pursuant to the Hearing Officer's Procedural Order on Post-Hearing Process and amendment thereto, the Environmental Defense Fund, Conservation Voters New Mexico, Diné C.A.R.E., Earthworks, National Parks Conservation Association, Natural Resources Defense Council, San Juan Citizens Alliance, Sierra Club, 350 New Mexico, 350 Santa Fe, Center for Civic Policy, NAVA Education Project, and New Mexico Environmental Law Center (collectively, "Community and Environmental Parties") respectfully submit their Joint Proposed Statement of Reasons for consideration by the New Mexico Environmental Improvement Board ("EIB").

Attached as Exhibit 1 to this Proposed Statement of Reasons is the Community and Environmental Parties' Final Amendments to Proposed 20.2.50 NMAC. The Community and Environmental Parties' final proposed amendments are shown in redline/strikeout over the New Mexico Environment Department's ("Environment Department") December 16, 2021 proposal circulated to the parties.

A Table of Contents and the Community and Environmental Parties' Proposed Finds of Fact and Conclusions of Law follows.

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## PROPOSED FINDINGS OF FACT

### I. INTEREST OF THE COMMUNITY AND ENVIRONMENTAL PARTIES

1. Each of the Community and Environmental Parties submitting this Joint Proposed Statement of Reasons shares a common interest in this proceeding to ensure that the EIB's final rules reduce emissions of ozone precursors to the maximum extent possible, protect public health from harmful air pollutants, and maximize strategies to combat climate change in order to enhance environmental protection, public health, and New Mexico communities' quality of life.

2. The Environmental Defense Fund ("EDF") is a national membership organization with more than 2.5 million members residing throughout the United States and more than 18,000 residing in the state of New Mexico, many of whom are deeply concerned about the pollution emitted from oil and natural gas sources. EDF brings a strong commitment to sound science, collaborative efforts with industry partners, and market-based solutions to our most pressing environmental and public health challenges.

3. Conservation Voters New Mexico ("CVNM") is a statewide, nonpartisan nonprofit committed to engaging the people of New Mexico in its long-standing values of protecting our air, land, water and the health of our communities. CVNM is committed to creating long-term change by working with communities to address environmental issues that impact their health and quality of life. CVNM's 1,700 members have an interest in ensuring maximum reduction of ozone precursors, methane, and other air pollutants from oil and gas operations in the state.

4. Diné C.A.R.E. is a nonprofit organization located on the Navajo Nation that works with Navajo communities to make their voices heard in the face of energy development that threatens those communities' public health and the climate. The Eastern Agency of Diné

Bikeyah, located within the State of New Mexico, is scattered with oil and gas wells that have generated the most potent methane cloud in the country, contributing to global warming. Diné C.A.R.E.'s interest in this proceeding is to minimize air pollution from oil and gas operations to protect its communities' lands, people, and way of life.

5. Earthworks is a nonprofit organization dedicated to protecting communities and the environment from the adverse impacts of mineral and energy development while promoting sustainable solutions. Earthworks stands for clean air, water and land, healthy communities, and corporate accountability. Earthworks' trained and certified staff have used optical gas imaging to document oil and gas air pollution across New Mexico and nationally. Earthworks' interest in this proceeding is to maximize reductions in ozone precursors, methane, and toxic pollutants around the state to protect against the health, environmental, economic, social and cultural impacts of oil and gas operations.

6. The National Parks Conservation Association ("NPCA") is a nonprofit organization dedicated to protecting and enhancing America's National Park System for present and future generations. Ozone threatens the health of park visitors and contributes to the disease and death of park species. National park ecosystems across the country are already showing damage from ground-level ozone pollution. NPCA's interest is this proceeding is to maximize reduction of ozone precursors, methane, and toxic air pollutants in order to protect the national parks in New Mexico from the environmental and public health harms associated with those pollutants.

7. The Natural Resources Defense Council ("NRDC") is a nonprofit organization that works to safeguard the earth—its people, its plants and animals, and the natural systems on which all life depends. NRDC works across the globe and in New Mexico to ensure the rights of

all people to the air, the water, and the wild. For NRDC, climate change is the major environmental challenge of our time, and it works around the world and in New Mexico advocating for deep cuts to carbon pollution by ending our dependence on climate-warming fossil fuels that pollute the air and water and harm public health and communities. NRDC's interest is to maximize reduction of ozone precursors and methane emissions in the state in an equitable and just manner. NRDC has over 10,000 members and activists in New Mexico.

8. San Juan Citizens Alliance ("Alliance") is a nonprofit organization with approximately 1,000 members that advocates for clean air, pure water, and healthy lands – the foundations of resilient communities, ecosystems and economies in the San Juan Basin. The Alliance was launched in 1986 by a group of concerned citizens to protect their families and neighbors from the impacts of unchecked oil and gas development. The Alliance has taken on a broad array of issues to protect the region's air, land, and water resources, including advocating for reductions in harmful emissions from oil and gas facilities. The Alliance's interest is to maximize reduction of ozone precursors, methane, and toxic pollutants in the San Juan Basin.

9. The Sierra Club is a national nonprofit organization with 67 chapters and more than 837,000 members dedicated to exploring, enjoying, and protecting the wild places of the earth; to practicing and promoting the responsible use of the earth's ecosystems and resources; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives. The Sierra Club works to protect communities across the nation and in New Mexico against pollution caused by fossil fuels, ensuring that principles of equity, justice and inclusion are at the forefront of its work. The Sierra Club's interest is to maximize reductions of ozone precursors, methane, and toxic pollutants around the state. The Sierra Club has approximately 10,000 members in New Mexico.

10. 350 New Mexico is a nonprofit organization dedicated to building an inclusive movement in New Mexico to prevent the worst effects of climate change and climate injustice. 350 New Mexico empowers New Mexicans to take on the fossil fuel industry and steer a just transition to renewable energy for all of us. Its 8,000 members' interest is to maximize reductions of ozone precursors, methane, and toxic pollutants in the state.

11. 350 Santa Fe is a nonprofit organization organized for the purpose of accelerating the transition away from fossil fuels and collaborating, coordinating, and cooperating with climate crisis fighters in and around Santa Fe, while supporting climate protection through legislative and administrative initiatives. 350 Santa Fe's interest is to ensure that the rules adopted by the EIB maximize reduction of emissions of ozone precursors, methane and toxic pollutants in New Mexico.

12. The Center for Civic Policy ("CCP") is a non-profit organization that works to empower and amplify the voices of everyday New Mexicans, especially those who experience oppression, in collaboration with local and national partners to incubate campaigns and foster strategic partnerships to achieve a more just and equitable New Mexico. CCP also serves as the convener of the New Mexico Civic Engagement Table, the largest 501c3 progressive advocacy hub in the state. CCP's interest in this proceeding is to ensure that principles of equity and environmental justice are applied and harmful emissions from oil and gas operations are reduced the maximum extent possible.

13. NAVA Education Project ("NAVA EP") is a non-profit organization dedicated to uniting community stakeholders to actively improve the quality of life for Native American communities and protect the continuity of Native American cultures. NAVA EP is committed to social, economic, and environmental justice principles that advance healthy and sustainable

communities for Native families living in New Mexico. NAVA's Diné Energy project aims to educate Native American communities on sustainable energy and economy models. NAVA EP's interest in this proceeding is to ensure that principles of equity and environmental justice are applied and harmful emissions from oil and gas operations are reduced the maximum extent possible.

14. The New Mexico Environmental Law Center ("Law Center") is a non-profit public interest law firm that represents environmental and community organizations on a wide variety of environmental and environmental justice issues in New Mexico. The Law Center has approximately 750 members. 1 Tr. 79:9-15. The Law Center has been a participant in this rulemaking proceeding from its inception. The Law Center was represented on the Methane Advisory Panel, which developed the technical basis for the proposed 20.2.50 NMAC, and submitted detailed written comments to the Environment Department on earlier draft of these proposed rules. 1 Tr. 89:15-90:4. The Law Center's interest in this proceeding is to ensure protection of the environment while promoting environmental justice and equity.

## II. THE COMMUNITY AND ENVIRONMENTAL PARTIES' WITNESSES

### A. Environmental Defense Fund

#### 1. David Lyon, Ph.D.

15. Dr. David Lyon is a Senior Scientist at EDF where he works on approaches to measure and reduce oil and gas methane emissions. Dr. Lyon has a Ph.D. in Environmental Dynamics from the University of Arkansas and performed his doctoral research on oil and gas methane emissions. He has worked at EDF for nine years and co-authored over 20 peer-reviewed papers on oil and gas methane. Prior to his position at EDF, he managed the State of Arkansas's air pollution emissions inventory program at the Arkansas Department of Environmental Quality.

Dr. Lyon's resume is EDF Exhibit B.

16. Dr. Lyon provided direct testimony on EDF's extensive research on oil and gas methane emissions over the last decade, and described findings from EDF's ongoing Permian Basin Methane Analysis Project which support the need for frequent leak detection and repair ("LDAR") requirements. EDF Ex. RR at 4-9. [Lyon Dir. Test.] Dr. Lyon also testified how science supports the Community and Environmental Parties' proximity based LDAR proposal to protect people who live, work, and go to school within 1,000 of a well site at 20.2.50.116 NMAC; the Community and Environmental Parties' proposal to ensure that gas-powered pneumatic controllers are subject to LDAR at 20.2.50.122 NMAC; and the Community and Environmental Parties' proposal to accelerate the schedule to retrofit pneumatic controllers to zero bleed at 20.2.50.122 NMAC. EDF Ex. RR at 9-12.

17. In rebuttal, Dr. Lyon testified that the Environment Department's estimate of pollution reductions that can be achieved through LDAR is conservative, and that the actual emission reductions will be greater. EDF Ex. XX at 6-8 [Lyon Reb. Test.]; 8 Tr. 2549:2-9, -2550:8-18. Dr. Lyon rebutted the New Mexico Oil and Gas Association's ("NMOGA") assertion that low-producing well sites (i.e., those with a potential to emit ("PTE") of less than 10 tons per year ("tpy") of volatile organic compounds ("VOCs") should be subject to less frequent inspections than proposed by the Environment Department based on scientific studies demonstrating that some low-producing wells emit pollution in amounts disproportionate to their energy production. EDF Ex. XX at 8-11; 8 Tr. 2553:2-2555:24. Finally, Dr. Lyon testified in rebuttal that gas-powered pneumatic controllers can emit significant pollution when malfunctioning and should be routinely inspected. EDF Ex. XX at 11-12.

### 2. Hillary Hull, M.S.

18. Hillary Hull is EDF's Director of Research and Analytics. In her role, she manages development of analytics and policy for EDF's state, federal, and international oil and natural gas advocacy efforts, including regulatory advocacy, emissions inventory compilation, data and economic analytics, technical support for rulemaking and regulation, and policy analysis and development. Ms. Hull has a bachelor's degree in Civil Engineering from the University of Texas at Austin and a master's degree in Environmental Engineering with a specialty in Atmosphere and Energy from Stanford University. Prior to working at EDF, she was a Senior Project Engineer for Environmental Resources Management, an environmental consulting firm. Ms. Hull's resume is EDF Exhibit P.

19. Ms. Hull's direct testimony summarized the Community and Environmental Parties' proximity based LDAR proposal, EDF's methodology for estimating emissions from oil and gas sources in New Mexico subject to the Environment Department guidance, EDF's methodology for estimating the number of wells and the emissions from such wells, subject to the Environment Department's proposed LDAR requirements, and EDF's methodology for identifying wells located within 1,000 feet of "occupied areas." EDF Ex. SS at 5-10. [Hull Dir. Test.] Ms. Hull summarized EDF's estimate of the costs, emissions reductions, and cost effectiveness of the proximity based LDAR proposal. EDF Ex. SS at 11-14; 8 Tr. 2597:11-2598:13. She testified on EDF's estimate of the demographic impacts of the proximity based LDAR proposal. EDF Ex. SS at 14-15; 8 Tr. 2593:24-2594:2. Finally, Ms. Hull summarized EDF's estimate of the costs, emission reductions, and cost effectiveness of the Community and Environmental Parties' flowback proposal. EDF Ex. SS at 15.

20. Ms. Hull's testified in rebuttal that NMOGA's well site LDAR proposal will

result in significant amounts of additional pollution to the atmosphere. EDF Ex. JJJ at 3-5 [Hull Reb. Test.]; 8 Tr. 2608:6-18. She testified that NMOGA's compressor station LDAR proposal will result in significant amounts of additional pollution to the atmosphere. EDF ex. JJJ at 5-6. Ms. Hull testified that the Environment Department's estimate of the cost effectiveness of its instrument-based equipment leak monitoring provisions is reasonable, and if anything understates the costs of inspections. EDF Ex. JJJ at 6-8. Finally, Ms. Hull's rebuttal testimony supported the reasonableness of the Environment Department's estimate of the costs to control storage vessels. EDF Ex. JJJ at 9-11.

### 3. Tammy Thompson, Ph.D.

21. Tammy Thompson is a Senior Air Quality Scientist at EDF where she guides decision making at EDF based on the science on atmospheric chemistry and physics, air quality modeling, and human health impacts. Dr. Thompson has a Bachelor's of Science and a Ph.D. in Chemical Engineering with a focus in atmospheric chemistry and physics and air quality modeling. She conducted her post-doctoral research at the Massachusetts Institute of Technology, working on the linkage between climate change and air quality, investigating and modeling how national and sub-national climate policies would impact human health through air quality co-benefits. She worked as a Research Scientist at Colorado State University investigating how emissions from oil and gas production in the U.S. would impact the National Park Service system. As a scientific consultant, she modeled national human health impacts from oil and gas production emissions and how methane standards would change those human health impacts. She has worked as a science policy fellow in the U.S. Environmental Protection Agency ("EPA") Office of Policy evaluating the use of air quality modeling in cost-benefit analysis, of which human health is a key part. Her expertise focuses on using modeling tools and input data

to estimate ambient concentrations of air pollution species. She then uses existing information about the human health impacts of different species of air pollution recognized by EPA and the World Health Organization to identify links to human health outcomes. Dr. Thompson's resume is EDF Exhibit FF.

22. Dr. Thompson's direct testimony provided an overview of the need for VOC reductions to protect air quality. EDF Ex. TT at 4 [Thompson Dir. Test.]. Dr. Thompson summarized studies that have found that persons living near oil and gas facilities are at greater risk of developing adverse health impacts due to increased exposure to VOCs, some of which are also classified as hazardous air pollutants. EDF Ex. TT at 5-6. Finally, Dr. Thompson testified that scientific studies demonstrates the need for more stringent controls of oil and gas emissions at well sites located near to where people play, work, and recreate. EDF Ex. TT at 6-7.

23. In rebuttal, Dr. Thompson testified that reducing VOC emissions in areas that are nitrogen oxides- or "NOx"-limited can still improve air quality. EDF Ex. BBB at 2-4 [Thompson Reb. Test.]. She testified that local oil and gas operations contribute significantly to ozone nonattainment in New Mexico. EDF Ex. BBB at 4-5. Finally, Dr. Thompson testified that the Environment Department's photochemical ozone model does not take into account the effect of a warming climate on ozone formation and thus likely underestimates future ozone concentrations. EDF Ex. BBB at 5.

**4. <u>Tom Alexander, M.S.</u>**

24. Tom Alexander has been a consultant to EDF for the past five years working on underground gas storage, flaring, venting, and conventional and unconventional oil and gas regulations. He assisted EDF in its advocacy before the New Mexico Oil Conservation Commission ("OCC") in January 2021 when it adopted its methane waste prevention rule. He

has assisted EDF with contributions to the Interstate Oil and Gas Compact Commission and Energy Resources, Research and Technology committee and two American Petroleum Institute work groups on risk management; health, safety and environment; security; and training. EDF Ex. KKK [Alexander resume].

25. Mr. Alexander worked for Southwest Energy Company ("SWN") for 18 years, from 1998 to 2016. He first worked as a consultant and then as a Staff Production and Completions Engineer, team leader for its Fayetteville Shale discovery team, and Completions Manager. From late 2012 to 2016, he served as Vice President of Health, Safety and Environment for the company. He also worked for SWN's Canadian subsidiary, SWN Resources Canada, in New Brunswick, Canada as the General Manager. Prior to SWN, Mr. Alexander worked for New Prospect Company and Revere Corporation in Fort Smith, Arkansas; Habersham Energy Company in Englewood, Colorado; Southwest Operating, Inc. and Altair Energy Corp. in Tyler, Texas; and Schlumberger Offshore Services in Houston, Texas. EDF Ex. KK.

26. Mr. Alexander received a Bachelor of Arts in Psychology from Wake Forest University and conducted post-graduate work in chemistry and genetics at Duke University. He received a Bachelor of Science and Master of Science in Mining Engineering from South Dakota School of Mines and Technology, and completed course work for a Master of Arts in Environmental Policy and Management at the University of Denver. Mr. Alexander's resume is EDF Ex. KK.

27. Mr. Alexander's direct testimony provided an overview and his support for the Parties' proposal to ensure that gas powered pneumatic controllers are subject to LDAR inspections at 20.2.50.122 NMAC. EDF Ex. UU, pp. 5-10 [Alexander Dir. Test.]. He testified in

support of the Community and Environmental Parties' proximity based LDAR proposal at 20.2.50.116 NMAC and in support of the Community and Environmental Parties' proposal to control and reduce emissions from flowback vessels during well completions at newly proposed 20.2.50.127 NMAC. EDF Ex. UU at 11-14. Mr. Alexander explained and testified in support of the Community and Environmental Parties' proposal to accelerate the retrofit schedule for pneumatic controllers. EDF Ex. UU at 14-15. Finally, Mr. Alexander explained and testified in support of the Community and Environmental Parties' proposal at 20.2.50.123 NMAC to require operators use a tank measurement system on new storage tanks and flowback vessels to reduce emissions. EDF Ex. UU at 15-16.

28. Mr. Alexander testified in rebuttal that the Environment Department had proposed a technically feasible and economically reasonable liquids unloading provision at 20.2.50.117 NMAC. EDF Ex. WW at 2-3. [Alexander Reb. Test.] He testified that the EIB should reject the proposed revisions to the liquids unloading provisions proposed by the Independent Petroleum Association of New Mexico and NMOGA because they are unnecessary and, if adopted, would result in increased emissions. EDF Ex. WW at 4-7. Finally, Mr. Alexander provided rebuttal testimony in support of the Community and Environmental Parties' and Oxy's agreement regarding the use of a tank measurement system to reduce emissions from storage vessels at 20.2.50.123 NMAC and to require control of emissions during completions and recompletions at 20.2.50.127 NMAC. EDF Ex. WW at 7-8.

**5. Maureen Lackner, M.P.P.**

29. Maureen Lackner is an Economics and Policy Manager in the EDF Office of the Chief Economist. She earned a Master of Public Policy from the Gerald R. Ford School of Public Policy at University of Michigan in 2017. For the past four years Ms. Lackner has provided

analysis on climate and environmental issues with a special focus on methane emissions from the oil and gas sector. Her work on this issue includes economic analyses on proposed regulations and policy design, as well as modeling to track global policy ambitions and abatement opportunities. EDF Ex. EEE at 1 [Lackner Reb. Test.]. Ms. Lackner's resume is EDF Ex. FFF.

30. Ms. Lackner provided rebuttal testimony regarding flaws and omissions in the NMOGA witness John Dunham report entitled "Estimated Costs of Proposed Ozone Precursor Rule on Oil and Natural Gas Development in New Mexico" ("JDA analysis") contained in NMOGA's Appendix A6. Ms. Lackner testified that the analysis overstates operational costs, fails to account for the social costs of pollution emitted by the oil and natural gas industry, and does not acknowledge the limitations of input-output model. EDF Ex. EEE at 3-5. At hearing Ms. Lackner testified that the EIB should give the JDA analysis no weight due to the errors, omissions, and limitations of the analysis. 3 Tr. 824:18-828:10.

## B. <u>Clean Air Advocates</u>

### 1. <u>David McCabe, Ph.D.</u>

31. David McCabe, Ph.D., is an atmospheric scientist with the Clean Air Task Force ("CATF") with ten years of experience studying emissions controls for the oil and gas sector. CATF is a nonprofit organization dedicated to reducing atmospheric pollution through research and analysis, public advocacy leadership, and partnership with the private sector. Dr. McCabe has a Bachelor of Arts in chemistry from the University of Chicago, and a Ph.D. in physical chemistry from the University of Colorado. He has designed several studies on emissions of air pollutants from oil and gas facilities, and is co-author on a number of peer-reviewed publications describing those studies and their findings. He has provided expert advice on technical comments submitted on oil and gas emissions controls and waste prevention measures proposed by the

EPA, the U.S. Bureau of Land Management ("BLM"), the states of California, Pennsylvania, and Colorado, and internationally in Mexico and Canada. In New Mexico, he presented to the Methane Advisory Panel in 2019, and testified before the New Mexico Oil Conservation Commission in January 2021 on its methane waste prevention rule. CAA Ex. 3 at 1 [McCabe Dir. Test.]. His curriculum vitae is Clean Air Advocates' Exhibit 2.

32. Dr. McCabe provided direct testimony how to cost effectively improve and strengthen Environment Department's proposals for pneumatic devices at 20.2.50.122 NMAC and storage vessels at 20.2.50.123 NMAC, CAA Ex. 3 at 2-29, and provided rebutted analyses from witnesses from the New Mexico Oil and Gas Association ("NMOGA") claiming that Environment Department had overstated emissions reductions to install and retrofit pneumatic controllers and underestimated costs. *See generally* CAA Ex. 23 [McCabe Reb. Test.].

**2. <u>Lee Ann L. Hill, M.P.H</u>**

33. Lee Ann L. Hill, M.P.H., is a senior scientist at Physicians, Scientists and Engineers for Healthy Energy ("PSE"), a multidisciplinary, non-profit energy science and policy research institute dedicated to supplying evidence-based scientific and technical information on the public health, environmental, equity and climate dimensions of energy production and use. She has a Master of Public Health in environmental health sciences from the School of Public Health at University of California, Berkeley and a Bachelor of Science in environmental science from Ithaca College. Ms. Hill conducts research on the environmental and public health dimensions of oil and gas development in the United States. Since 2016, she has supported and led PSE's work on the environmental health dimensions of oil and gas development in the United States. Much of her recent work has focused on examining the body of peer-reviewed literature on topics related to oil and gas development and human health, air quality, water

quality, and waste management. Her recent publications include studies on produced water management and chemical use associated with oil and gas development across multiple states, and the air quality and human health implications of oil and gas development and underground gas storage facilities. CAA Ex. 25 at 1-2 [Hill Reb. Test.]. Her curriculum vitae is Clean Air Advocates' Exhibit 24.

33. Ms. Hill provided testimony on the risks to human health, the environment, and the climate caused by air pollutants emitted by upstream oil and gas sites. Oil and gas operations emit nitrogen oxides ("NOx") and volatile organic compounds ("VOCs") that are "ozone precursors" which form ozone through chemical reactions in the presence of sunlight. Ground level ozone is one of six "criteria pollutants" that the U.S. Environmental Protection ("EPA") limits based on health criteria. VOCs from oil and gas operations can harm the central nervous system; eyes, skin and respiratory tracts; the liver, kidney, and endocrine systems. Health risks and impacts increase the closer people live, work, and go to school near oil and gas facilities. Ms. Hill testified in support of the Community and Environmental Parties' proposal at 20.2.50.116 NMAC to increase leak detection and repair ("LDAR") inspections at oil and gas facilities located within 1,000 feet of "occupied areas" such home, businesses, and schools because of the increased health risks and impacts from living, working, and going to school in close proximity to oil and gas facilities. *See generally* CAA Ex. 25.

**3. <u>Daniel Orozco, Ph.D.</u>**

34. Daniel Orozco, Ph.D., is a physics engineer. He holds a B.S. in Physics Engineering, a M.S. in atmospheric physics, and a Ph.D. in atmospheric physics from the University of Maryland, Baltimore County. For more than 12 years, his research and work have focused on the study of chemical and optical properties of air pollutants and the

development of instrumentation to analyze pollution, as well as analyzing sources' impacts on air. He worked as a research assistant at the University of Maryland in the Atmospheric Lidar Group for the Joint Center for Earth Systems Technology. He later worked for the Air and Radiation Management Administration at the Maryland Department of the Environment. He is currently employed at the National Parks Conservation Association as its Senior Clean Air and Climate Analyst. 9 Tr. 2973:14-2972:9. His curriculum vitae is Clean Air Advocates' Exhibit Ex. 27.

35. Dr. Orozco provided testimony explaining why Clean Air Advocates oppose certain changes that the Environment Department made to the engines provision as part of its rebuttal testimony. He explained that engines are by far the largest source of NOx from the oil-and-gas industry. Since ozone formation in New Mexico is often NOx limited, reducing NOx from engines is an important strategy for reducing ozone levels in New Mexico. Dr. Orozco testified that that the standards for existing 4-stroke lean-burn engines ("4SLBs") in the updated Environment Department proposal are not protective enough. The Colorado Air Pollution Control Division Colorado adopted a standard of 1.2 grams of NOx per horsepower-hour for these engines, a level it found to be cost effective and achievable. The Environment Department's revised standard of 2.0 grams of NOx per horsepower-hour for existing 4SLBs with a rated horsepower between 1,000 and 1,750 is 40% higher than the Colorado standard applicable to these same engines. Dr. Orozco also explained why he does not support the Environment Department's proposal to delete the prior requirement that engines or turbines "*installed*" after the effective date of the rule meet the emission standards applicable to new equipment. He expressed concern that this provision might make New Mexico a "dumping ground" for old, high-pollution equipment that is no longer allowed in other states. 9 Tr.

2973:14–89:6

**4. Don Schreiber**

36. Don Schreiber is the owner and operator, along with his wife, of Devil's Spring Ranch, a 3000+ acre ranch in Gobernador, New Mexico, an old ranching community in northwest Rio Arriba County. The Schreibers' objective was to create a scalable model for sustainable agriculture using non-traditional ranching methods. There are about 122 gas wells on or around his ranch, including 33 wells within one mile of his home. Mr. Schreiber was appointed to Governor Michelle Lujan Grisham's Energy Transition Team in 2018 and served on the Methane Advisory Panel sponsored by the Environment Department and the New Mexico Energy, Minerals and Natural Resources Department. Prior to ranching, Mr. Schreiber owned an insurance agency in Farmington, New Mexico and provided risk management services for the oil and gas industry. He has a Bachelor's of Science from the University of New Mexico. CAA Ex. 10 at 1-2 [Schreiber Dir. Test.]. His resume is Clean Air Advocates' Exhibit 9.

37. Mr. Schreiber provided testimony on his personal experiences of the impacts of oil and gas operations on his land and family. Mr. Schreiber provided testimony in support of the Community and Environmental Parties' proposal to reduce emissions during completions and recompletions of wells at 20.2.50.127 NMAC. He discussed his experience with an oil and gas company drilling and producing on and around his land that implemented practices to reduce emissions during completions and recompletions as well as a company that refused to implement such practices. *See generally* CAA Ex. 10 [Schreiber Dir. Test.].

**C. Center for Civic Policy and NAVA Education Project**

**1. James Povijua**

38. Warren James Honaberger, who goes by James Povijua, serves as the Policy

Director for the Center for Civic Policy. Through his work, Mr. Povijua engages with populations that live or work in oil and gas country in New Mexico, including with members of the Navajo Nation and Native American Pueblos, as well as immigrant communities of color. Mr. Povijua is originally from Alcalde, New Mexico and is a member of the Ohkay Owingeh Pueblo. Ohkay Owingeh, is located in Rio Arriba County in the north-central part of New Mexico that overlays the San Juan Basin. Mr. Povijua holds a Bachelor of Arts degree in Industrial Labor Relations from Goddard College. CCP/NAVA EP Ex. 3 at 1-3 [Povijua Test.]. His resume is CCP/NAVA EP Ex. 2.

39. Mr. Povijua provided testimony on his personal knowledge of the adverse health effects experienced by Native individuals living near oil and gas producing lands, and the difficulty of Native populations in those areas accessing health care. Mr. Povijua testified in support of the Parties' proposals, and specifically supported a proposed amendment requiring more frequent inspections for leaks in wells that are within 1,000 feet of a home, school, large work facility, or playground in order to ensure that people that people who are living, working, playing, or studying in close proximity to oil and gas wells get the full benefit of the pollution control strategies used to find and fix pollution leaks. He emphasized that this is an important policy to ensure that minority and low-income residents are not disparately impacted by these air pollutants. *See generally* CCP/NAVA EP Ex. 3.

**2. <u>Joseph F. Hernandez</u>**

40. Joseph F. Hernandez is the Diné Energy Organizer at the NAVA Education Project. Mr. Hernandez is from Shiprock, New Mexico and is enrolled as a member of the Navajo Nation. He is a member of the Gadii'ahi/To'koi chapter house, located west of Shiprock, and previously served as president of his chapter house's Community Land Use Planning

Committee. He is an heir to several allotments in the Eastern Navajo Agency, an area with oil and gas production. Mr. Hernandez has completed business and pre-engineering courses at the Southwestern Indian Polytechnic Institute and has also worked as hydro-blast technician on oil and gas wells in Bloomfield, New Mexico. CCP/NAVA EP Ex. 4 at 1-2 [Hernandez Test.]; 4 Tr.1067:5-6.

41. Mr. Hernandez provided testimony on his personal knowledge of the harmful effects of oil and gas production on Native American communities. He testified that he has personally breathed in air thick with the taste of emissions produced by oil and gas operations, and observed crashes in Native American communities due to issues with oil and gas tanker transportation. Mr. Hernandez testified in support of the Parties' proposals, and specifically supported a proposed amendment requiring more frequent inspections for leaks in wells that are within 1,000 feet of a home, school, large work facility, or playground. In his view, this amendment is necessary because many Navajo people that live and work in close proximity to oil and gas wells. *See generally* CCP/NAVA EP Ex. 4.

### 3. Clifford J. Villa, J.D.

42. Clifford J. Villa is a tenured professor of law at the University of New Mexico School of Law. As a law professor, his primary focus as both a scholar and a teacher is environmental law and the law of environmental justice. He is the lead author of a textbook on environmental justice, a co-author of a casebook on environmental law, and teaches course on environmental law, environmental enforcement, and environmental justice. He is also the author of several scholarly articles in law reviews related to environmental justice, and has provided numerous professional presentations on environmental justice, including to the EPA Region 10 Office, the Environment Department, and the Rocky Mountain Mineral Law Foundation's

Annual Institute. Prior to joining the faculty at the law school, Professor Villa worked for over 20 years as an attorney at the EPA, most recently serving as Assistant Regional Counsel for U.S. EPA Region 10. His work at the EPA involved the administration of the Clean Air Act and addressing concerns about hazardous air pollutants including VOCs such as benzene and toluene. His work at the EPA also focused heavily on incorporating environmental justice concerns into compliance and enforcement, for example by ensuring protections for indigenous, immigrant, and low-income communities. CCP/NAVA EP Ex. 6 at 2-5 [Villa Reb. Test.]. His resume is CCP/NAVA EP Ex. 7.

43. Professor Villa provided expert testimony describing how federal and state environmental laws and regulations have historically failed to adequately prevent disparate pollution harms on communities of color and low-income communities, including in New Mexico. He also discussed how in his expert opinion the EIB has a mandatory duty to consider potential disparate health harms under the New Mexico Air Quality Control Act, federal and state administrative law, and federal and state case law. He noted that proposed changes to the regulations from NMOGA would subject low potential-to-emit wells to less frequent leak detection inspections, and that other testimony demonstrated that many people of color, including Native Americans, live in close proximity to such wells and living in close proximity to such facilities results in increased health risks. He testified in support of the Community and Environmental Parties' proposal to require more frequent leak detection and repair for wellhead sites within 1,000 feet of occupied buildings, stating that adopting such provisions would be in keeping with the principles of environmental justice. CCP/NAVA EP Ex. 6 at 2-5 [Villa Reb. Test.].

### D. New Mexico Environmental Law Center

#### 1. Theresa A. Pasqual

44. Theresa A. Pasqual testified on behalf of the Law Center. NMELC Ex. 1; 2 Tr. 572:2-576:12. From September 2016 to September 2020, Ms. Pasqual served as Native American Tribal Liaison for the Office of Science and Water in the United States Department of the Interior, Washington, D.C. She was an independent consultant to the Acoma Pueblo from June 2014 to June 2016. From December 2006 until June 2014, Ms. Pasqual served as both Executive Director of the Acoma Historic Preservation Office, and as the Historic Site Director for the National Trust for Historic Preservation, in the Acoma Pueblo. NMELC Ex. 2 at 1; *see also* NMELC Ex. 1 at 1; 2 Tr. 572:9-16. Since 2010, Ms. Pasqual has lectured on various topics relating to the management of land and natural resource from a tribal perspective. NMELC Ex. 2 at 2. Ms. Pasqual is Board President of Conservation Voters New Mexico, and she has been on the board of Conservation Voters New Mexico Education Fund since 2015. NMELC Ex. 2 at 2; NMELC Ex. 1 at 1; 2 Tr. 572:17-18. Ms. Pasqual is working toward a Bachelor of Science degree in Anthropology from the University of New Mexico. NMELC Ex. 2 at 1; 2 Tr. 572:18-20.

45. Ms. Pasqual, a member of the Acoma Pueblo, provided testimony on the adverse effects of extractive industries on tribal communities. Citing U.S. census figures from 2010, she testified that the adverse effects of air pollution from oil and gas production fall disproportionately on Native American and Hispanic communities. NMELC Ex. 2; 2 Tr. 572:2-576:12.

## III. THE EIB'S STATUTORY AUTHORITY IS BROAD, AND INCLUDES CONSIDERATION OF PUBLIC HEALTH AND THE ENVIRONMENT

46. The Environment Department submitted its petition in support of proposed

regulation 20.2.50 NMAC – *Oil and Gas Sector – Ozone Precursor Pollutants ("Part 50")* under the authority of the New Mexico Air Quality Control Act. NMED Pet. at 1.

47. Pursuant to the Air Quality Control Act:

- Section 74-2-5.A provides that the EIB "shall prevent or abate air pollution."
- Section 74-2-5.B(1) provides that the EIB shall "adopt, promulgate, publish, amend, and repeal rules and standards consistent with the Air Quality Control Act to attain and maintain national ambient air quality standards and prevent or abate air pollution . . . ."

48. Under Section 74-2-5.F of the Air Quality Control Act, the EIB has broad authority to consider the public interest, including public health and the environment, when promulgating regulations. That section provides:

> E. In making its rules, the environmental improvement board or the local board shall give weight it deems appropriate to all facts and circumstances, including:
>
> (1) **character and degree of injury to or interference with health, welfare, visibility and property;**
>
> (2**) the public interest**, including social and economic value of the sources and subjects of air contaminants; and
>
> (3) technical practicability and economic reasonableness of reducing or eliminating air contaminants from the sources involved and previous experience with equipment and methods available to control the air contaminants involved.

NMSA 1978, § 74-2-5.F. (emphasis added).

49. In promulgating regulations, the EIB may consider "health," "welfare," "property," and the "public interest." NMSA 1978, § 74-2-5.F.

50. Methane emissions negatively impact the environment as a potent greenhouse gas. Given the breadth of destructive impacts of climate change, the EIB has more than ample statutory authority to consider co-benefits of reducing methane on "health," "welfare," "property," and "public interest" when crafting a rule to control VOCs and NOx as ozone

precursors. NMSA 1978, § 74-2-5.F.

51. Similarly, VOCs and NOx harm human health. The EIB has clean statutory authority to consider the co-benefits of reducing those harmful pollutants on "health," "welfare," and the "public interest" when crafting a rule to control VOCs and NOx as ozone precursors. NMSA 1978, § 74-2-5.F.

## IV. THE EIB MUST CONSIDER DISPARATE IMPACTS OF ITS RULES

### A. The EIB and the Environment Department Have an Obligation to Consider and Mitigate Disparate Impacts of Air Pollution

52. On November 18, 2005, then-New Mexico Governor Bill Richardson signed Executive Order 2005-056: Environmental Justice Executive Order. CCP/NAVA EP Ex. 6 at 13-14 [Villa Reb. Test.].

53. The Executive Order declares that "the State of New Mexico is committed to affording all of its residents, including communities of color and low-income communities, fair treatment and meaningful involvement in the development, implementation, and enforcement of environmental laws, regulations, and policies regardless of race, color, ethnicity, religion, income or educational level." The Executive Order specifically applies to "all cabinet level departments and boards … that are involved in decisions that may affect environmental quality and public health…." CCP/NAVA EP Ex. 6 at 13-14.

54. The Executive Order continues that all relevant departments and boards "shall … seek to address disproportionate exposure to environmental hazards and risks" and that "[a]ll relevant cabinet level departments and boards … shall utilize available environmental and public health data to address impacts in low-income communities and communities of color…." CCP/NAVA EP Ex. 6 at 13-14.

55. CCP witness Prof. Villa testified that in his understanding this executive order is

still in effect and applies to the EIB. CCP/NAVA EP Ex. 6 at 13-14.

56. The Environment Department also maintains a stated commitment to environmental justice on its website. CCP/NAVA EP Ex. 6 at 9.

57. According to Prof. Villa, executive orders are not themselves directly enforceable, but courts have found that executive orders establish enforceable standards of conduct for agencies. 8 Tr. 2761:5-21.

58. In Prof. Villa's expert opinion, the EIB must consider and give weight to the disparate impacts of pollution in promulgating regulations under the Air Quality Control Act. CCP/NAVA EP Ex. 6 at 12.

59. In particular, Prof. Villa testified that as part of its statutory requirement under Section 74-2-5.F. to "give weight it deems appropriate to all facts and circumstances, including … the character and degree of injury to or interference with health [and] welfare," the EIB must include consideration of any facts and circumstances related to whether a proposed regulation would result in disparate harms to low-income communities or communities of color.

60. Prof. Villa's scholarship has shown that there is now a thirty-year history of federal and state action and judicial opinions recognizing that disparate impacts of pollution on marginalized communities are a critical component of the "character and degree" of public health impacts. He pointed in particular to a recent decision by the federal United States Court of Appeals for the Fourth Circuit, *Friends of Buckingham v. State Air Pollution Control Bd.*, that held that the Virginia Air Pollution Control Board—a board very similar to the EIB—was required to take into account environmental justice considerations under state statutory authority that uses some of the same language as the Air Quality Control Act. CCP/NAVA EP Ex. 6 at 12-16.

61. Prof. Villa gave as another example that, following the 2005 New Mexico Supreme Court decision *In re Application of Rhino Envtl. Servs.,* a 2008 New Mexico Attorney General Opinion determined that the Air Quality Control Act was analogous to the statute at issue in *Rhino Envtl. Servs.*, and that therefore the Air Quality Control Act authorized consideration of environmental justice concerns. CCP/NAVA EP Ex. 6 at 15-16.

62. Prof. Villa further testified that the Title VI of the Civil Rights Act of 1964 prohibits programs receiving federal funds—including state environmental permitting programs that rely in part on federal funding, such as state Clean Air Act compliance programs—from discriminating against any person on the grounds of race, color, or national origin. He noted that EPA's regulations implementing this law specifically prohibit agencies receiving federal aid from using "criteria or methods of administering its program or activity which have the effect of subjecting individuals to discrimination because of their race, color, national origin, or sex." In other words, EPA regulations prohibit state agencies receiving federal funds, including the Environment Department, from using criteria or methods of administering regulatory programs in ways that would have a discriminatory impact on groups of a particular race. CCP/NAVA EP Ex. 6 at 14-15.

63. One of the most common environmental injustices—or failures to treat all people fairly, regardless of race, color, national origin, or income—is when environmental laws and regulations allow marginalized groups to be subject to higher levels of pollution than other groups of people. CCP/NAVA EP Ex. 6 at 9.

64. There have been numerous examples of environmental injustices in New Mexico. In particular, Native American and Latino communities in New Mexico have been repeatedly exposed to disparate levels of pollution. CCP/NAVA EP Ex. 6 at 9-10.

65. These historic injustices include, among others, the disparate impact of uranium mining on Native American communities, the disparate impacts of hazardous waste sites on Latino and Native American populations throughout the state, and disparate impacts of polluting industrial facilities and other environmental risks in the South Valley of Albuquerque. CCP/NAVA EP Ex. 6 at 9-10.

### B. Oil and Gas Air Pollution Disparately Affects Communities of Color and Native American Populations

66 Witnesses from Clean Air Advocates, EDF, CCP/NAVA EP, and the Law Center collectively testified that people who live in close proximity to oil and gas facilities are at higher risk of health harms from oil and gas pollution, and that in New Mexico people of color and Native American people disproportionately live in close proximity to oil and gas facilities as compared to the rest of the population. *See generally* EDF Ex. SS at 1 [Hull Test.]; CAA Ex. 25 [Hill Reb. Test.]; NMELC Ex. 1 [Pasqual Test.]; CCP/NAVA EP Ex. 6 [Villa Reb. Test.]; CCP/NAVA EP Ex. 3 [Povijua Test.]; CCP/NAVA EP Ex. 3 [Hernandez Test.]

67. Law Center witness Theresa Pasqual and CCP and NAVA EP witnesses James Povijua and Joseph Hernandez all testified about their concern that harmful air pollution emissions from oil and gas facilities disparately affect the communities of color and Native American communities that they are part of and urged the EIB to promulgate regulations that ensure that the benefits of pollution reduction used to reduce ozone precursor emissions equitably protect all communities, especially communities of color and Native American communities. 2 Tr. 600:13-601:19 (Povijua Test.); 4 Tr. 1069:24-1070:25 (Hernandez Test.); 2 Tr. 575:5-7 (Pasqual Test.).

68. Numerous members of the public expressed concerns that hazardous air pollution from oil and gas facilities disproportionately puts communities of color and Native American

communities at risk of health harms and urged the EIB to adopt regulations that provide stronger protections for these communities. *E.g.,* 4 Tr. 978:4-979:13 (public comment of Hanh Nguyen, stating that "communities of color face disproportionate impacts from … air pollution in Lea, Eddy, and San Juan Counties," and urging EIB to protect those living closest to oil and gas development as necessary for "healthy equity" for communities of color."); 2 Tr. 349:5-12 (public comment of Sister Marlene Parrot, "tribal communities … are especially at risk" from hazardous air pollution, stating that while the Environment Department proposal is strong, "more work needs to be done to protect communities); 7 Tr. 2126:11-18 (public comment of Luis Guerrero, urging "strong ozone rules" in part because "tribal communities … are especially at risk.").

69. After testimony from witnesses about potential health risks to those living in close proximity to oil and gas facilities, NMOGA witness John Smitherman returned for further direct examination where he stated that NMOGA members "recognize and sympathize with the concerns that others have expressed about [proximity emissions]." He stated that because his home is in close proximity to oil and gas wells, "it does hit a little closer to home." 8 Tr. 2708:7-2709:18.

70. Clean Air Advocates expert witness Lee Ann Hill, whose work involves examining the peer-reviewed literature on oil and gas development and human health, air quality, water quality, and waste management, testified in detail how oil and gas facilities emit air pollutants hazardous to human health. 9 Tr. 2836:23-2837:17 [Hill Reb. Test.]; CAA Ex. 24 [Hill CV]; CAA Ex. 25 [Hill Reb. Test.] at 4.

71. Emissions from oil and gas facilities include emissions of VOCs and NOx that, in the presence of sunlight, form ground-level ozone or smog. Ground-level ozone is a well-

understood respiratory irritant that causes the muscles in the airways to constrict. Exposure to ground-level ozone can result in coughing and sore throat and can inflame and damage the airways. As such, ground-level ozone can exacerbate existing respiratory conditions, increase susceptibility to infection, and increase the frequency of asthma attacks. Adverse respiratory health effects resulting in exposure to ozone have been observed in healthy adults, but are more severe among sensitive subpopulations, including those with preexisting lung diseases such as asthma, emphysema, chronic bronchitis, and chronic obstructive pulmonary disease. Ground-level ozone has been linked to increased emergency room visits for respiratory conditions in the United States. CAA Ex. 25 at 9-10.

72. In addition to the potential adverse health impacts resulting from the formation of ground level ozone, many of the volatile organic compounds emitted by oil and gas facilities are categorized as hazardous air pollutants by the EPA. According to a 2019 peer-reviewed study, at least 61 hazardous air pollutants ("HAPs") were measured near oil and gas sites. CAA Ex. 25 at 5.

73. The five HAPs most frequently detected near upstream oil and gas sites are benzene, toluene, ethylbenzene, xylenes, and n-hexane. CAA Ex. 25 at 5.

74. Benzene is a known carcinogen, for which there is no safe level of exposure. It also is associated with neurological effects (drowsiness, dizziness, headaches) and eye, skin and respiratory tract irritation. Chronic inhalation exposure to benzene is associated with noncancer hematological effects, such as aplastic anemia in which the body does not produce enough new blood cells. CAA Ex. 25 at 8.

75. Ethylbenzene: is recognized by the International Agency for Research on Cancer as "possibly carcinogenic to humans." Acute inhalation exposure to ethylbenzene can result in

adverse respiratory effects, eye irritation, and neurological effects including dizziness. Chronic exposure to ethylbenzene has been noted for adverse effects on the liver, kidney, endocrine system and on development in animal studies. CAA Ex. 25 at 8-9.

76. Toluene, xylenes, and n-hexane all affect the central nervous system through acute and/or chronic exposures, and are associated with associated with impacts such as irritation of the upper respiratory tract and eyes, dizziness, headache, fatigue, numbness in the extremities, muscular weakness, and blurred vision. CAA Ex. 25 at 8-9.

77. The risks and impacts to public health from VOCs, NOx, and ground-level ozone increase the more a person is exposed to these pollutants. Chronic exposure to NOx and ground-level ozone are risk factors in the development of asthma, particularly in children, resulting in increased morbidity from respiratory diseases at the societal scale and over one's lifetime. Severe, chronic exposure to NOx and ground-level ozone are associated with premature mortality. CAA Ex. 25 at 10-11.

78. Three peer-reviewed air quality health risk assessment studies indicate cancer and noncancer health risks increase with increasing proximity to oil and gas development sites. CAA Ex. 25 at 13-14.

79. In addition, the body of epidemiological literature strongly supports the conclusion that geographic proximity to active oil and gas development is an important risk factor for a variety of adverse health outcomes, including respiratory outcomes, cardiovascular outcomes and cardiovascular disease indicators, childhood cancer, hospitalizations, and adverse birth outcomes. CAA Ex. 25 at 14-15.

80. In sum, Ms. Hill testified there is a reasonable degree of scientific certainty that living in close proximity to oil and gas facilities results in increased health risks from elevated air

pollution levels. The public health risks and impacts associated with air pollutant emissions from oil and gas facilities that go unaddressed would be disproportionately experienced by people who live, work and go to school near oil and gas facilities. 9 Tr. 2836:13-22.

81. No party provided evidence that there is no increased risk to health by living in close proximity to oil and gas wells.

82. According to data from the Environment Department, three San Juan Basin counties – Rio Arriba County, Sandoval County, and San Juan County – have ambient ground-level ozone concentrations that exceed 95% of the National Ambient Air Quality Standards. NMELC Ex. 1 at 2 [Pasqual Test.]; 2 Tr. 575:7-13.

83. According to 2010 U.S. census figures, 16.0% of the population of Rio Arriba County is Native American. NMELC Ex. 1 at 2-3 [Pasqual Test.]; 2 Tr. 575:17-19.

84. According to 2010 U.S. census figures, 71.3% of the population of Rio Arriba County is Hispanic. NMELC Ex. 1 at 2-3 [Pasqual Test.]; 2 Tr. 575:17-19.

85. According to 2010 U.S. census figures, 12.9% of the population of Sandoval County is Native American. NMELC Ex. 1 at 2-3 [Pasqual Test.]; 2 Tr. 575:19-21.[1]

86. According to 2010 U.S. census figures, 35.1% of the population of Sandoval County is Hispanic. NMELC Ex. 1 at 2-3 [Pasqual Test.]; 2 Tr. 575:19-21.

87. According to 2010 U.S. census figures, 36.6% of the population of San Juan County is Native American. NMELC Ex. 1 at 2-3 [Pasqual Test.]; 2 Tr. 575:21-23.

88. According to 2010 U.S. census figures, 19.1% of the population of San Juan County is Hispanic. NMELC Ex. 1 at 2-3 [Pasqual Test.]; 2 Tr. 575:21-23.

[1] Due to an error in the testimony or the transcription, page 575, line 19 reads "Rio Arriba County." It should read "Sandoval County."

89. EDF expert witness Hillary Hull testified that EDF analyzed the characteristics of populations living within 1,000 feet of low production well sites in New Mexico – well sites that would have been subject to less frequent leak inspections under the Environment Department's proposal. Ms. Hull provided an explanation of the methodology used to conduct this analysis in her testimony, EDF Ex. SS at 5-8, 14-15, and introduced the underlying data in EDF Ex. DD.

90. Ms. Hull testified that based on this analysis, EDF found that over 35,000 New Mexicans live within 1,000 feet of a well site. Of those, EDF estimated that 19,000 are people of color, including over 5,800 Native Americans. In addition, over 2,700 are children under the age of 5, more than 4,500 are adults 65 years or older, more than 5,700 are living in poverty. EDF Ex. SS at 14-15.

91. In addition, Ms. Hull testified that those living in close proximity to these well sites have health conditions that could be exacerbated by additional air pollution. These include more than 3,800 adults with asthma, over 2,200 adults with coronary heart disease, almost 2,600 with chronic obstructive pulmonary disease, and more than 1,200 adults who have experienced or are at risk of a stroke. EDF Ex. SS at 15.

92. On cross-examination, Ms. Hull explained that the number of people of color living in close proximity to low-producing well sites is disproportionate to the percentage of people of color in the state as a whole. A higher percentage of people of color and Native Americans live within 1,000 feet of a well site than the percentage of people of color and Native Americans living in the state as a whole. 8 Tr. 2624:10-24.

93. Ms. Hull also explained that with regards to the marginalized populations she described that live in close proximity to oil and gas wells, approximately 90% of those people live on nontribal lands, meaning they live on land that is subject to the jurisdiction of the

Environment Department's regulations. 8 Tr. 26245:1-9.

94. In Ms. Hull's expert opinion, if the EIB were to adopt less stringent frequency of leak inspections at wellhead facilities as was proposed by NMOGA, it could result in up to 23,000 tons of additional VOCs leaked into the atmosphere from wellhead facilities located in areas that are predominantly occupied by people of color and Native Americans. 8 Tr. 26245:21-26246:6.

95. NMELC expert witness Theresa Pasqual testified that oil and gas is produced in close proximity to indigenous communities in New Mexico, and that air pollution from oil and natural gas production disproportionately affects Native American and Hispanic communities in New Mexico. NMELC Ex. 1 at 1-2; 2 Tr. 574:3-575:7.

96. No party provided evidence contravening Ms. Hull's or Ms. Pasqual's testimony that people of color and Native Americans disproportionately live in close proximity to oil and gas wells, or that they are disproportionately at risk from oil and gas air pollution.

## V. THE COMMUNITY AND ENVIRONMENTAL PARTIES AND THE NATIONAL PARK SERVICE PROPOSE TO REDUCE NOx EMISSIONS FROM ENGINES AT 20.2.50.113 NMAC

### A. <u>The Community and Environmental Parties and the National Park Service Propose to Strengthen the Environment Department's Engines Proposal</u>

97. The Parties propose two changes to 20.2.50.113 NMAC or "Section 113," governing engines and turbines. *See* Ex. 1 at 8-10.[2]

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[2] The Parties did not submit evidence related to Section 20.2.50.113 NMAC as part of their direct or rebuttal testimony, because they were not advocating any changes to the provision as proposed by the Environment Department in its direct testimony. On September 7, 2021, the Environment Department filed rebuttal testimony, which included substantial changes to this provision. Because these changes were not made until the Department rebuttal testimony, the Parties did not have an opportunity to address them until surrebuttal. On surrebuttal, Clean Air Advocates presented the testimony of Dr. Daniel Orozco in support of the changes proposed here. Although NMOGA objected that Dr. Orozco's surrebuttal testimony was untimely, the

98. First, the Parties propose more protective standards for existing 4SLBs. The Parties propose a standard of **1.2 grams of NOx per horsepower hour** for existing 4SLBs with a rated horsepower between 1,000 and 1,775, a standard consistent with that currently in effect in Colorado.

99. Second, the Parties propose returning to the Department's proposal in its Petition for Regulatory Change, which treats all engines or turbines "installed" after the effective date of the rule as "new" equipment subject to more stringent new-source standards.

100. The National Park Service, which has expertise in this area, puts forth each of these same proposals as well. 8 Tr. 2392–98 [Devore Test.]

### B. <u>Reducing NOx from Engines Is Important to Reduce Ozone in New Mexico</u>

101. Engines and turbines are by far the largest source of NOx emissions from the oil-and-gas industry. *See* 9 Tr. 2974:19–20 [Orozco Test.]; NMOGA Statement of Intent to Present Technical Testimony at 97 [Valor EPC Study: NMAC 20.2.50.113, Engines and Turbines].

102. A variety of NOx control options exist for new and existing engines, including combustion modifications and post-combustion controls. 6 Tr. 1673:2–15 [Bisbey-Kuehn Test.]. Ozone formation in New Mexico is often NOx limited. Accordingly, reducing NOx from engines and turbines is an important strategy for reducing ozone levels in New Mexico. 9 Tr. 2974:21–23.

### C. <u>The Environment Department Weakened the Standards for Engines Between Its Petition and Its Rebuttal NOI</u>

103. The regulations the Environment Department proposed as part of its original Petition would have set a standard of **0.5 grams of NOx per horsepower hour** for all existing

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Hearing Officer overruled this objection. 9 Tr. 2975:6–22.

lean-burn engines. However, in its rebuttal, the Environment Department proposed a standard of **2.0 grams of NOx per horsepower hour** for existing 4SLBs with a rated horsepower between 1,000 and 1,775. *See* NMED Reb. Ex. 23 at 9 [redline showing changes to Section 113 adopted between Petition/direct notice of intent ("NOI") and rebuttal NOI].

104. The regulations the Environment Department proposed as part of its Petition for Regulatory Change would have reduced NOx emissions from engines by a total of **18,000 tons per year**. However, the regulations included in the Environment Department's rebuttal testimony are expected to reduce NOx emissions by only **5,000 tons per year**. 6 Tr. 1708:12–14 [Palmer Test.].

### D. The Environment Department's Proposal Is Weaker than Other States' Standards

105. In 2020, the Colorado Air Pollution Control Division adopted a standard of **1.2 grams of NOx per horsepower hour**, applicable to all existing 4SLBs. 9 Tr. 2976:10–14; *see* 5 Colo. Code Regs. § 1001-9-E-I (Table 2). This is the same standard the Parties propose for existing 4SLBs with a rated horsepower between 1,000 and 1,775.

106. The Environment Department's proposed emission standard for existing 4SLBs with a rated horsepower between 1,000 and 1,775 is 40% higher than the Colorado standards applicable to the same engines. 9 Tr. 2976:20–23.

107. Other state and local air quality agencies have adopted standards for existing engines that are more stringent than the standards the Environment Department has proposed. For example, Texas has adopted a standard of **0.7 grams per horsepower hour** for existing lean-burn engines within the Dallas-Fort Worth ozone nonattainment area. 9 Tr. 2977 2977:4–11; 30 Tex. Admin. Code, section 117.2110. Pennsylvania's standard for these engines, when installed at new or modified facilities, is **0.5 grams per horsepower hour**. 9 Tr. 2977:12–14.

In addition, many air districts in California have even tighter NOx emission limits, with some requiring emissions as low as **0.15 grams per horsepower hour**. 9 Tr. 2977:15–18.

### E. <u>The Parties and the National Park Service's Proposal Is Cost Effective</u>

108. The Colorado Air Pollution Control Division found a standard of **1.2 grams of NOx per horsepower hour**, which is proposed by the Parties and the National Park Service, to be cost effective and achievable for all existing 4SLBs. 9 Tr. 2976:12–14.

### F. <u>There Is No Evidence Establishing the Colorado Standard for Existing 4SLBs Is Unachievable in New Mexico</u>

109. No party presented evidence why New Mexico operators could not achieve a limit of 1.2 grams of NOx per horsepower hour at existing 4SLBs with a rated horsepower between 1,000 and 1,775. See 9 Tr. 2978:10–13.

110. NMOGA's analysis stated that some retrofitted legacy engines could meet 0.8 grams of NOx per horsepower hour, but that the cost to bring these emissions down to 0.5 gram of NOx per horsepower hour would be excessive. 9 Tr. 2978:13–17; *see also* NMOGA, Statement of Intent to Present Technical Testimony at 83–91 [Valor EPC Study: NMAC 20.2.50.113, Engines and Turbines].

111. The Environment Department did not explain why it was proposing to increase the limit for existing 4SLBs with a rated horsepower between 1,000 and 1,775 to 2.0 grams of NOx per horsepower hour. The Environment Department's analysis was limited to providing a table showing that 100% of medium size existing 4SLBs tested in Ohio were emitting less than this standard. 9 Tr. 2978:25–2879:6; *see* NMED Reb. Ex. 1 at 31.

112. Section 113 contains numerous flexibilities to allow operators to continue using engines that do not meet the applicable emission standard. For example, operators can reduce the annual hours of operation, submit an Alternative Compliance Plan that averages emissions

across the operator's entire fleet of engines, and seek exemptions for particular engines that cannot meet the standard in a cost effective manner. 9 Tr. 2979:7–15; 6 Tr. 1679:11–1682:5.

113. NMOGA's expert Justin Lisowski acknowledged that the alternative compliance mechanisms included in the Environment Department's proposal could, if properly implemented, allay concerns about adopting a more stringent standard for existing 4SLBs. *See* 9 Tr. 2995:8–24 (acknowledging that "conceptually [the rule] might prove to have the proper off ramps").

114. The Environment Department's proposal will result in unnecessary emissions because it fails to require operators to implement all of the cost effective controls that are available. The proposal is set at a level that all existing 4SLBs can already achieve. It is then further weakened by the availability of alternative compliance mechanisms that make it unnecessary to meet implement even this lax standard across the entire fleet of existing 4SLBs. 9 Tr. 2979:7–15.

115. The Environment Department estimates that the NOx controls for engines included in its rebuttal testimony will cost $11.4 million a year to implement, reducing 5,000 tons of NOx. See 6 Tr. 1678:6–8. This amounts to a cost of $2,280 per ton of NOx reduced.

116. Emission controls that cost $7,500 a ton of NOx or less are generally deemed cost effective. 6 Tr. 1703:19–1704:19 [Bisbey-Kuehn Test.].

### G. The Environment Department Did Not Explain Why It Deleted Its Original Proposal that Would Have Applied the Most Protective Standards to Newly Installed Engines

117. The regulations the Environment Department proposed as part of its Petition would have treated newly "installed" engines as new sources subject to the most stringent emission limits. The rebuttal version deleted this proposal. *See* NMED Reb. Ex. 23 at 9 [redline showing changes to Section 113 adopted between Petition/direct NOI and rebuttal NOI].

118. The Environment Department did not provide an explanation why it deleted this proposal. *See* NMED Reb. Ex. 1 at 28 (noting this change was proposed by NMOGA and Kinder Morgan and stating "NMED agrees to delete the term 'installed.'").

119. Colorado applies more stringent new source controls to engines that are "placed in service, modified, **or relocated**" after the effective date of its engines rule. 5 Colo. Code Regs. § 1001-9-E-I (Table 2) (emphasis added).

120. If operators can install old engines at new facilities in New Mexico without complying with new engine standards, there is a risk that New Mexico may become a dumping ground for old, high-pollution equipment that is no longer allowed in other states. 9 Tr. 2976:1–7.

121. The Parties and the National Park Service therefore propose returning to the Department's proposal in its Petition treating all engines or turbines "installed" after the effective date of the rule as "new" equipment subject to more stringent new-source standards.

## VI. THE COMMUNITY AND ENVIRONMENTAL PARTIES, THE ENVIRONMENT DEPARTMENT, AND OXY PROPOSE TO INCREASE LDAR INSPECTIONS TO PROTECT PERSONS IN CLOSE PROXIMITY TO OIL AND GAS WELLS AT 20.2.50.116 NMAC

### A. A Coalition of Parties Supports the Proximity Proposal

122. Prior to and during hearing, the Community and Environmental Parties and Oxy proposed to increase the frequency of inspections at well sites located within 1,000 feet of an "occupied area." *See, e.g.,* CAA Ex. 26 at 17 [Joint Proposed Second Revised Amendments to Proposed 20.2.50 NMAC]; Oxy Reb. Ex. 1 at 16.

123. An "occupied area" is a place where people live, work, go to school, and recreate, and is defined as:

> **(1)** a building or structure used as a place of residence by a person, family, or families, and 49 includes manufactured, mobile, and modular homes, except to the extent that such manufactured, mobile, or modular home is intended for temporary occupancy or for business purposes;
> **(2)** indoor or outdoor spaces associated with a school that students use commonly as part of their curriculum or extracurricular activities;
> **(3)** five-thousand (5,000) or more square feet of building floor area in commercial facilities that are operating and normally occupied during working hours: and
> **(4)** an outdoor venue or recreation area, such as a playground, permanent sports field, 1 amphitheater, or similar place of outdoor public assembly.

*See* Community and Environmental Parties' Ex. 1 at 3-4 [proposed 20.2.50.116.7.LL NMAC].

124. The Community and Environmental Parties and Oxy propose to require **quarterly** LDAR inspections at sites with the potential to emit zero to 5 tpy of VOCs and **monthly** inspections at sites with the potential to emit 5 tpy or more of VOCs. *See* Community and Environmental Parties Ex. 1 at 19 [proposed 20.2.50.116.C(3)(e) NMAC].

125. At the close of evidence on this section during the hearing, the Environment Department adopted the proximity proposal and proposes it for adoption by the EIB. 8 Tr. 2774:24-2775:9; *see* NMED Proposed 20.2.50 NMAC - Dec. 16, 2021 Version.

### B. The Proximity Proposal Will Reduce VOCs and Help New Mexico Stay in Attainment for Ozone

126. The proximity proposal will reduce VOCs that contribute to ozone pollution, thereby helping New Mexico protect clean air and remain in attainment with the National Ambient Air Quality Standards for ozone. EDF Ex. TT at 3. EDF estimates that the proximity proposal will impact 3,365 or 7.7% of the sites in the state, will reduce VOC emissions by 3,600 tons per year, and will increase VOC emissions reductions at those sites by 73%. EDF Ex. SS at 4-5. This resulting reduction in VOCs will help New Mexico reduce local formation of ozone and help New Mexico stay in attainment of the National Ambient Air Quality Standards for ozone. 8 Tr. 2718:6-22, 2595:19-20.

### C. <u>The Proximity Proposal Results in the Co-benefits of Reducing Methane and HAPs Emissions</u>

127. The proximity proposal will secure important co-benefits by reducing 14,300 tons of methane and 150 tons of hazardous air pollutant annually. 8 Tr. 2593:21-23; EDF Ex. SS at 11.

### D. <u>Oil and Gas Operations Emit Air Pollutants Harmful to Human Health</u>

128. Air pollutants hazardous to human health, the environment, and the climate — including greenhouse gases, hazardous air pollutants, and criteria air pollutants — are emitted from upstream oil and gas development sites. CCA Ex. 25 at 1 [Hill Reb. Test.].

129. Air pollutants emitted directly from oil and gas facilities also contribute to the secondary formation of air pollutants in the atmosphere that also pose risks to human health and the environment (e.g., ground-level ozone). CCA Ex. 25 at 1.

130. Multiple air pollutants emitted from oil and gas facilities are associated with adverse impacts on human health and the environment. Broadly, air pollutants emitted from oil and gas facilities include greenhouse gases (e.g., methane); VOCs, many of which are HAPs; and criteria air pollutants (e.g., NOx). CCA Ex. 25 at 4, 5.

131. At least 61 HAPs have been measured near upstream oil and gas sites or investigated from secondary data sources in the peer-reviewed literature. HAPs emitted from oil and gas facilities include benzene which is a known human carcinogen, toluene, ethylbenzene, xylene, and n-hexane. CCA Ex. 25 at 7-9.

132. The risks to human health from VOCs emitted from oil and gas facilities are many and varied and include harm to the central nervous system, eyes, skin and respiratory tracts, as well as the liver, kidney, and endocrine systems. CCA Ex. 25 at 7-9.

## E. Persons Living, Working, and Going to School Near Oil and Gas Facilities Are at Greater Risk Due to Emissions of Air Pollutants

133. Chronic or long-term exposure to VOCs, NOx and ground-level ozone may result in longer lasting or more severe public health consequences. Generally, the duration of exposure is a key factor that influences the development of adverse health outcomes. CAA Ex. 25 at 10.

134. There is a reasonable degree of scientific certainty that living in close proximity to oil and gas facilities results in increased health risks and impacts from elevated air pollution levels and that these health risks are increasingly attenuated further from these operations. CAA Ex. 25 at 2, 11.

135. Atmospheric concentrations of health-damaging air pollutants associated with oil and gas development generally decrease with distance from oil and gas facilities. CAA Ex. 25 at 1.

136. The public health risks and impacts associated with air pollutant emissions from oil and gas facilities that go unaddressed would be disproportionately experienced by people who live, work, and go to school near oil and gas facilities. CAA Ex. 25 at 2-3.

137. Peer-reviewed air quality health risk assessment studies indicate cancer and noncancer health risks increase with increasing proximity to oil and gas development sites. CAA Ex. 25 at 14.

138. A Colorado Department of Public Health and Environment study found the following with respect to elevated lifetime cancer risk:

- Benzene exposures from both production emissions alone, and all activities combined (drilling, fracking, flowback and production), were associated with an increased lifetime risk (above one in a million) of leukemia for the average individual at 500 feet.

- Risks in the populations exposed to the highest concentrations only dropped below the one-in-a-million risk threshold after a distance of 2000 feet. The study also found non-cancer health risks, including the following:

- Benzene and 2-ethyltoluene emissions were found to be higher than considered safe for most simulated populations at 500 feet away after the maximum one hour exposure.

- Exposures of benzene were more than 10 times higher than considered safe for one hour maximum exposure and is a risk for blood disorders. Blood disorders could result in anemia, disturbances in clotting or the ability to fight infections, and could manifest as fatigue, nose bleeds or infections.

- The study also found the potential for neurotoxic effects, such as headaches, blurred vision, dizziness, from combined acute exposures of benzene and 2-ethyltoluene.

- Risks were seen with acute exposure in every age group assessed.

- Exposures and risks during the flowback stage were found to be higher than those from other drilling and fracking activities. Specifically, long term (chronic) exposure to multiple VOCs (n-nonane, benzene, m+p-xylene, and trimethylbenzenes) during prolonged flowback activities, in large well sites resulted in elevated risks for neurotoxicity and blood disorders.

EDF Ex. TT at 5-6; 8 Tr. 2722:13-2728:11; *see also* CAA Ex. 25 at 12-18 (summarizing numerous peer reviewed studies indicating health risks increase the closer people live to oil and gas operations).

139. The scientific literature points to the need for frequent if not continuous leak detection using modern and advanced leak detection methods capable of identifying leaks. EDF Ex. RR at 8.

140. The body of epidemiological literature strongly supports the conclusion that that geographic proximity to active oil and gas development is an important risk factor for a variety of adverse health outcomes, including: respiratory outcomes, cardiovascular outcomes and cardiovascular disease indicators, childhood cancer, hospitalizations, and adverse birth outcomes. CCA Ex. 25 at 1at 14-15.

141. Emission reductions strategies should focus on sites in close proximity to human

populations. CAA Ex. 25 3.

142. The increased frequency of LDAR inspections within 1,000 feet of "occupied areas" proposed by the Community and Environmental Parties, the Environment Department, and Oxy at 20.2.50.116 NMAC is a targeted strategy to increase public health protections. This targeted strategy has the strong support of Ms. Hill, a public health expert with specialized knowledge of the risks and impacts of oil and gas development on public health, the environment, and climate. CAA Ex. 25 at 3.

### F. The Proximity Proposal Will Protect the Health of Vulnerable Persons Living Near Oil and Gas Facilities

143. EDF estimates that the proposal will protect the health of over 35,000 New Mexicans living within 1,000 feet of a well site. 8 Tr. 2593:24-2594:2.

144. Of those, over 2,700 are children under the age of 5, more than 4,500 are adults 65 years or older, more than 5,700 are living in poverty, and 19,000 are people of color, including over 5,800 Native Americans. EDF Ex. SS at 15.

145. Because of this proximity to well sites, people of color and Native Americans in New Mexico are at a disproportionately higher risk of health conditions exacerbated by additional air pollution, which includes asthma, heart disease and cancers. 8 Tr. 2624:16-24, 2626:17-21.

146. Those living in close proximity to these well sites have health conditions that could be exacerbated by additional air pollution. 8 Tr. 2596:23-25. These include more than 3,800 adults with asthma, over 2,200 adults with coronary heart disease, almost 2,600 with chronic obstructive pulmonary disease, and more than 1,200 adults who have experienced or are at risk of a stroke. EDF Ex. DD; EDF Ex. SS at 15; 8 Tr. 2596:23-2597:4.

### G. <u>The Proximity Proposal Is Cost Effective</u>

147. The proximity proposal's LDAR requirements are highly cost effective when calculating the compliance costs divided by the VOC reductions. EDF analysis and a comparison of the cost effectiveness of the proximity proposal to similar inspection requirements adopted by other air quality agencies support the cost effectiveness of the proposal. 8 Tr. 2597:9-2598:13.

148. The proximity proposal will increase annual emissions reductions by 3,600 tons of VOC. This represents an incremental increase in LDAR costs of $4.8 million (or 13% higher) from the Environment Department's initial proposal, and results in an average cost of **$894 per ton VOC reduced** within the proposed 1,000 foot boundary (or $349 per ton VOC reduced statewide). EDF Ex. DD; EDF Ex. SS at 4-5; 8 Tr. 2595:19-20.

149. If quarterly and monthly inspections are calculated separately, the cost is $576 per ton VOC reduced for monthly inspections within the boundary and $1,351 per ton VOC reduced for quarterly inspections within the boundary. EDF Ex. SS at 13.

150. The proximity proposal increases the overall statewide cost of the Environment Department's initial proposed LDAR program from $317 per ton VOC reduced to $349 per ton VOC reduced. EDF Ex. SS at 11; 8 Tr. 2597:11-19. This insubstantial increase is due to the increased frequency of inspections. 8 Tr. 2598:15-2599:1.

151. The estimated cost of the Community and Environmental Parties, the Environment Department, and Oxy's proposal -- which includes both quarterly and monthly inspections implemented at a cost of $894 per ton of VOC reduced within the 1,000-foot boundary -- is quite reasonable. EDF Ex. SS at 13. Other jurisdictions that have adopted quarterly or monthly inspection requirements have done so based on cost estimates that were higher than EDF's cost estimates for the proximity proposal. 8 Tr. 2597:9-2600:8.

152. In conclusion, the costs to implement the proximity proposal are economically feasible and entirely reasonable. 10 Tr. 3214:19-22.

## VII. SUBSTANTIAL EVIDENCE SUPPORTS THE COMMUNITY AND ENVIRONMENTAL PARTIES' PROPOSAL AT 20.2.50.122 NMAC TO ACCELERATE THE SCHEDULE TO REPLACE EMITTING PNEUMATIC CONTROLLERS

### A. The Community and Environmental Parties and Oxy Propose to Accelerate the Phase Out of Polluting Pneumatic Controllers

153. The Community and Environmental Parties support the Environment Department's proposal to require operators to replace pneumatic controllers that are designed to emit air pollutants with zero-emission alternatives. The Community and Environmental Parties propose certain changes to strengthen the Environment Department's proposal and make it more effective.

154. First, and most importantly, Community and Environmental Parties propose to accelerate the transition to zero-emitting controllers, to ensure that New Mexico is not needlessly delaying the important environmental benefits. CAA Ex. 3 at 2; CAA Ex. 23 at 2.

155. Second, the Community and Environmental Parties propose a change to the structure of the phase-out table. Specifically, the Community and Environmental Parties propose that operators be required to achieve a fixed increase in the **percentag**e of non-emitting controllers, rather than reaching a fixed end point. This makes the rule more effective, more equitable, and less arbitrary. CAA Ex. 3 at 2.

156. Each of the changes proposed by Community and Environmental Parties will make New Mexico's rule more similar to the one Colorado adopted in 2020 with the support of the oil and gas industry. CAA Ex. 3 at 2.

157. Oxy supports accelerating the transition to zero-emitting devices, and proposes

modifications to the rule that would accelerate this transition. *See* Oxy Reb. Ex. 1 at 25-26. . Community and Environmental Parties support Oxy's proposal if the EIB decides to adopt the metric for replacement of pneumatic controllers that Oxy proposes, *i.e.*, liquids production.

**B. <u>Pneumatic Controllers Are a Significant Source of Pollution in New Mexico</u>**

158. Pneumatic controllers that are operated with natural gas emit air pollutants, both as part of their normal operation and when they malfunction. Natural gas is primarily composed of methane, a potent greenhouse gas. Other pollutants, including ozone-forming VOCs and toxic or cancer-causing hazardous air pollutants, are typically present in natural gas at sites such as well production facilities, gathering compressor stations, and processing plants. Pneumatic controllers are designed to release the gas that is used to operate them, and typically are configured to release that gas directly into the atmosphere. When natural gas is used to operate controllers, that gas (and the air pollutants it contains) is emitted into the atmosphere. CAA Ex. 3 at 4.

159. Pneumatic controllers often malfunction, which causes them to emit more natural gas than they are designed to emit. For example, intermittent-bleed controllers, which are the most common type in New Mexico, are designed to emit only during the actuation cycle for the controller, but in the field, these devices frequently emit between actuations. CAA Ex. 3 at 5.

160. Given the extent to which pneumatic devices malfunction and emit more than they are designed to emit, it is difficult to precisely quantify emissions from these devices. However, Clean Air Task Force analysis of data collected for the Permian and San Juan basins in EPA's Greenhouse Gas Reporting program indicates that there are over 118,000 pneumatic controllers in New Mexico that collectively emit about 108,000 metric tons of methane and about 30,000 metric tons of VOC. Analysis from EDF indicates that pneumatic devices are the

second largest source of methane emissions from the oil and gas industry in New Mexico. CAA Ex. 3 at 7–8.

### C. Replacing Polluting Pneumatic Controllers with Zero-Emission Controllers Is a Proven, Cost Effective Strategy for Reducing Emissions

161. It is possible to replace polluting pneumatic controllers with devices that perform the same function without polluting. Several cost effective technologies are available that can entirely eliminate emissions from gas-driven pneumatic controllers, at new and existing sites, with and without electricity available. The first approach is to use compressed air instead of pressurized natural gas to operate controllers. A second approach is to use electric controllers, avoiding the use of pneumatic operation. CAA Ex. 3 at 8–9.

162. Retrofitting polluting controllers with zero emission alternatives is a cost effective method for reducing emissions. Clean Air Task Force conducted analysis as part of a recent rulemaking in Colorado that demonstrated that converting to these technologies at new and existing well-pads and compressor stations was a cost effective mitigation approach for reducing VOC and methane emissions. This conclusion is well supported by a number of recent regulations that prohibit installation of new gas-driven pneumatic controllers (unless their emissions are captured or controlled). CAA Ex. 3 at 10.

### D. Colorado Has Adopted an Aggressive Plan to Phase Out Polluting Pneumatic Controllers, with Industry Support

163. In 2020, Colorado's Air Quality Control Commission adopted regulations that require operators to retrofit a substantial portion of their polluting pneumatic controllers to use non-emitting controllers over the next few years. CAA Ex. 3 at 11–12.

164. For compressor stations, operators in Colorado are required to retrofit a certain percentage of their polluting pneumatic devices by May 2022. Each operator must convert

additional polluting controllers by May 2023. The number of devices an operator must convert depends on the total historic percentage of non-emitting controllers in the operator's fleet. Generally, an operator starting with a smaller percentage of non-emitting controllers must convert a greater number of controllers; however, all operators that utilize polluting pneumatic controllers must retrofit some additional controllers. CAA Ex. 3 at 12–13.

165. For example, a compressor station operator with a historic percentage of non-emitting controllers of 0 to 20% would be required to retrofit 20% of its polluting controllers by May 2022. It would then be required to retrofit an additional 25% of its controllers by May 2023. Thus, an operator that started without any zero-emission controllers would be required to convert 55% of its controllers to non-emitting within two years. CAA Ex. 3 at 12–13.

166. For oil and gas production facilities, the Colorado rule establishes a retrofit schedule with the same timelines and a similar structure as the table applicable to compressor stations. However, instead of retrofitting a given percentage of their **controllers**, operators must convert a certain percentage of their **production** to non-emitting. Specifically, operators must convert facilities that account for a certain percentage of the operator's total liquids production (liquid hydrocarbons plus produced water) in the state by each date. For example, an operator that currently produces 10% of its statewide liquids at well pads with no emitting pneumatics must convert well pads that account for 15% of the operator's total statewide liquids to non-emitting by May 2022, and then must convert additional well pads that account for 25% of the operator's total statewide liquids to non-emitting by May 2023. CAA Ex. 3 at 13.

### E. The Environment Department's Retrofit Program Is Far Too Slow

167. The Environment Department's timeline is much slower than Colorado's timeline. To give an example, a Colorado operator of natural gas gathering compressor stations that

currently has no non-emitting controllers would have to convert 45% of its controllers at those stations by May 2023. Under the Environment Department's proposal, such an operator would only be required to convert 25% of its controllers by 2024, and would not be required to match the Colorado requirement **until January 2027**. CAA Ex. 23 at 4.

168. The Community and Environmental Parties' proposal would accelerate the compliance timeline, while setting two deadlines (May 1, 2023 and May 1, 2025) instead of three deadlines in the Environment Department's proposal (January 1, 2024, January 1, 2027, and January 1, 2030). *See* CAA Ex. 3 at 15.

169. Each additional year of delay means thousands of additional tons of VOCs and tens of thousands of additional tons of methane will be emitted. Those environmental and public health impacts are irreversible. CAA Ex. 3 at 21.

### F. There Is Precedent for Conducting a Rapid Phase Out of Polluting Pneumatics at Transmission Compressor Stations and Other Facilities with Access to Grid Power

170. Community and Environmental Parties proposed that sites with access to electric power, gas processing plants, and transmission compressor stations should all convert to non-emitting controllers within six months of the effective date of the rule. *See* CAA Ex. 22 at 25 (proposed 20.2.50.122.B(3) NMAC.

171. It has long been recognized that it is simpler, easier, and less expensive to convert sites with electricity to non-emitting controllers. CAA Ex. 23 at 19.

172. The Environment Department's technical analysis shows that all gas processing plants in New Mexico are already using non-emitting controllers, and all of them have access to commercial line electric power. Further, this analysis finds that all transmission compressor stations have access to electric power. CAA Ex. 3 at 16.

173. Kinder Morgan's expert, Leslie R. Nolting, testified that Kinder Morgan has access to commercial power at its transmission compressor stations, and even employs emergency engines to provide **backup** power in the event commercial power is lost due to inclement weather or electric grid equipment failures. CAA Ex. 23 at 24; KM Exhibit VI to Notice of Intent at 19.

174. There is precedent for requiring a very rapid phase-out of polluting pneumatic devices at larger facilities with access to grid electric power. In December 2017, Colorado required operators of gas processing plants in the Front Range Nonattainment Area to convert to non-emitting pneumatic controllers by May 1, 2018 (i.e., within six months). CAA Ex. 3 at 16–17.

175. While pipeline-quality gas has a lower VOC content than gas further upstream, transmission compressor stations can still be a significant source of VOCs, and converting to zero-emitting pneumatic devices is a particularly cost effective way to reduce emissions from these sources. CAA Ex. 23 at 24.

### G. Rather than Requiring Operators to Achieve a Fixed *Percentage* of Non-Emitting Controllers, the Rule Should Require Operators to Achieve a Fixed *Increase*

176. Requiring operators to achieve a fixed **percentage**, no matter where they lie within their cohort, is less efficient, less equitable for operators, and creates arbitrary outcomes. It may also create an incentive for operators to undercount the number of existing pneumatic devices, or perversely, to delay retrofits so they remain in a favorable position (i.e., immediately below a threshold for inclusion in the next higher cohort). CAA Ex 3 at 17–19.

177. Colorado requires operators to achieve a fixed **increase** in the percentage of non-emitting controllers. CAA Ex. 3 at 18.

### H. The Environment Department's Proposed Retrofit Program Is Cost effective

178. The Environment Department estimated that the pneumatic retrofit program would cost $2,596 per ton of VOC reduced for gathering and boosting stations, $5,023 per ton of VOC reduced for transmission compressor stations, and $2,745 per ton of VOC reduced for wellhead and tank battery facilities. CAA Ex. 3 at 23.

179. The Environment Department's estimates generally are reasonable, but they have overestimated the net costs of pneumatic controller retrofits for several reasons. First, the Environment Department's estimates omit the increased revenues that operators receive because, after retrofitting facilities to eliminate venting pneumatic controllers, they are able to sell the gas that the pneumatic controllers would otherwise vent. Second, the Environment Department's estimates omit the maintenance savings that operators realize when they convert from gas-driven controllers to instrument air or electric controllers. Third, the Environment Department estimates the costs for retrofitting all sites with access to electricity by modeling costs for instrument air systems. For smaller sites, electric controllers will often be more cost effective. Fourth, the Environment Department fails to account for the fact that operators will likely replace all of the devices at a particular site at the same time. CAA Ex. 3 at 23–25.

180. Valor EPC ("Valor"), a consultant for NMOGA, estimated that the annualized cost of the pneumatic retrofit program would be $7,213 per ton of VOC reduced. CAA Ex. 23 at 13.

181. Valor radically overestimated the costs of the Environment Department's proposed regulation of pneumatic controllers, and ignores the ways the Environment Department overestimated costs. Valor ignores the ways that the Environment Department overestimated costs. Valor makes a variety of variety of erroneous assumptions that lead it to overestimate

equipment and installation costs. CAA Ex. 23 at 14.

182. Valor's analysis used an emission factor for intermittent-bleed controllers that is much lower than the factor recommended by EPA. While Colorado used an emission factor for intermittent-bleed controllers of 3.5 standard cubic feet per hour ("scf/hr") for its 2020 pneumatics rule, this is too low for New Mexico. It is most appropriate for New Mexico to continue using the EPA emission factor of 13.5 scf/hr. CAA Ex. 23 at 7–13.

183. Valor's cost estimate is also based on air compression equipment that is sized to provide a much greater volume of compressed air to the pneumatic controllers at a site than those pneumatic controllers would need, based on Valor's claims about emissions from the controllers. CAA Ex. 23 at 14–15.

### I. A More Rapid Phase Out, as Community and Environmental Parties Propose, Would Also Be Cost Effective

184. The Community and Environmental Parties propose to accelerate the transition already required by the Environment Department's proposal. The required pace of retrofits under the program would still be very reasonable and similar to that required in Colorado. This accelerated schedule would therefore not increase overall costs in any significant way; at most, it would require owners and operators to incur some of these costs sooner than they otherwise might (while also increasing cumulative environmental benefits and ensuring that these benefits accrue sooner). CAA Ex. 3 at 25.

185. No party submitted analysis indicating that the total cost of the retrofit program increases if retrofits occur in earlier years. While the costs may be incurred earlier, the benefits to public health and the environment (as well as the benefits to industry in the form of increased revenue and maintenance savings) will be realized earlier as well. CAA Ex. 23 at 6.

## J. There Is No Need to Exempt Operators that Convert 75% of Their Polluting Controllers from Further Requirements

186. The Environment Department has proposed a provision that states: "if an owner or operator meets at least 75% total non-emitting controllers by January 1, 2025, the owner or operator has satisfied the requirements of table 1 and 2." CAA Ex. 3 at 25 (quoting the proposed 20.2.50.122.B(4)(c)(v) NMAC).

187. The proposed exemption makes the rule less effective because it could result in a large number of pneumatic devices not being converted, even where it would be technically feasible and cost effective to do so. CAA Ex. 3 at 26.

188. The Environment Department has not set forth any technical or economic basis for this exemption. The Environment Department's analysis shows that is technically feasible to retrofit emitting controllers with zero-emission controllers and that the cost per ton of VOCs abated is reasonable. The incremental benefits of an additional retrofit are the same regardless of what the operator's historic percentage is. CAA Ex. 3 at 26.

## K. NMOGA's Proposed Exemption for Stripper Well Operators Would Exempt Operators that Can Easily Afford to Replace Outdated, Polluting Controllers

189. NMOGA proposes to exempt operators that produce less than 15 barrels of oil equivalent per well per day from the pneumatic retrofit requirement. NMOGA Statement of Intent to Present Technical Testimony, App. A at 47 (proposed section 20.2.50.122.B(3)(c) NMAC).

190. NMOGA's proposed exemption is based on language in the Colorado rule. However, NMOGA's proposal would exempt **twice as many wells** as are exempted by the Colorado rule. CAA Ex. 23 at 21.

191. NMOGA's exemption would apply to much larger firms than the Colorado

exemption. For example, Hillcorp Energy Co. would be eligible for the exemption created by NMOGA, and would not have to conduct any retrofits at the **11,400 wells** it owns in New Mexico. The exemption proposed by NMOGA is far too broad. CAA Ex. 23 at 22.

### L. The Community and Environmental Parties and Oxy Propose to Require Operators to Include Polluting Pneumatics in Their LDAR Program

192. Community and Environmental Parties proposed requiring operators to include pneumatic devices in their leak detection and repair program. Community and Environmental Parties' Ex. 1 at 26 (proposing a new subsection at 20.2.50.116.C(4) NMAC).

193. Since 2018, Colorado has required operators to perform LDAR on polluting pneumatics in the Denver Metro/North Front Range Ozone Nonattainment Area. This requirement was extended to the rest of the state in 2020. CAA Ex. 23 at 3.

194. The Environment Department has incorporated this proposal into its most recent proposal. *See* NMED Jan. 18, 2022 Version of Proposed 20.2.50 NMAC at 28-29.

195. NMOGA and Oxy have also indicated that they support this proposal. *See* 7 Tr. 2110:5–10 [Meyer Test.]; Oxy Reb. Ex. 1 at 26-27.

## VIII. THE COMMUNITY AND ENVIRONMENTAL PARTIES AND OXY PROPOSE TO REDUCE EMISSIONS FROM STORAGE VESSELS AT 20.2.50.123 NMAC

### A. The Community and Environmental Parties and Oxy Propose to Reduce Emissions from Storage Vessels

196. The Community and Environmental Parties proposed adding a subsection to 20.2.50.123 NMAC or "Section 123" to require the use of storage vessel measurement systems for storage vessels at new and modified facilities. The proposal would prohibit operators from opening the thief hatch in order to conduct routine measurements of the quantity and quality of the liquid, and would require the use of an alternative, non-polluting method to conduct these measurements. Community and Environmental Parties' Ex. 1 at 28.

197. This provision mirrors almost word for word an amendment to Regulation 7 adopted by the Colorado Air Quality Control Commission in December 2019. CAA Ex. 3 at 27 (citing 5 Colo. Code Regs. § 1001-9:D.II.C.4).

198. Oxy supports this proposal, and proposes it as well. 9 Tr. 2900:10-22. Oxy's expert, Mr. Holderman, testified that Oxy USA believes this addition is reasonable, workable, and likely to reduce emissions. 9 Tr. 2900:18-22.

199. At the close of evidence on Section 123, the Environment Department voiced its support for the proposal. Ms. Bisbey-Kuehn testified the proposal would "reduce emissions" and stated that the Environment Department "generally accept[ed] and support[ed] the proposal." 9 Tr. 3031:18–23.

### B. <u>The Environment Department's Changes Weaken the Proposal</u>

200. In its most recent proposal (circulated to all counsel on December 17, 2021), the Environment Department adopted the Community and Environmental Parties' proposal in large part. However, there are important differences that render the Environment Department's proposal less protective than the Community and Environmental Parties and Oxy's proposal.

201. First, the Environment Department's proposal only requires use of a storage tank measurement system capable of measuring the **quantity** of liquid. The Community and Environmental Parties propose a system that can also measure the **quality** of liquids.

202. Second, the Environment Department's proposal applies to "new storage vessels required to be controlled pursuant to this Part," whereas the Community and Environmental Parties' proposal applies to any tank installed at a new or **modified** facility.

203. Third, the Environment Department's proposal would allow operators to open a thief hatch "as necessary for custody transfer." This provision is ambiguous and could be used

to circumvent the intent of the rule because a purchaser's desire to measure the quantity and quality of the liquid manually could be deemed sufficient reason to open the thief hatch even though it is not technically necessary to open the hatch.

### C. <u>Substantial Evidence Supports Adoption of the Community and Environmental Parties' Entire Storage Vessel Proposal</u>

204. The Community and Environmental Parties and Oxy's proposal would reduce emissions from storage vessels installed at new or modified facilities by requiring those tanks to employ a measurement system to determine the quantity and ***quality*** of liquids inside the vessel. CAA Ex. 3 at 27 [McCabe Dir. Test.].

205. Typically, operators open a thief hatch on the top of the tank to insert a gauging device to measure the level of liquid in the tank or to collect samples of the liquid. When the hatch is opened, air pollutants, including methane, VOCs, and cancer-causing hazardous air pollutants like benzene, are released. Since gauging is often performed frequently, and the hatch is opened every time a measurement is taken, these emissions can be significant. CAA Ex. 3 at 27.

206. Operators can avoid these emissions by employing an alternative system to measure and sample the liquids in the vessel. Examples of alternative systems that do not require venting include systems that comply with Chapter 18.2 of American Petroleum Institute Manual of Petroleum Measurement Standards, or by installing a Lease Automatic Custody Transfer ("LACT") unit. CAA Ex. 3 at 27.

207. In 2019, Colorado adopted a rule requiring operators to employ these types of alternative systems for new or modified storage vessels. Clean Air Advocates' proposal mirrors this provision. CAA Ex. 3 at 27.

208. The Colorado Air Pollution Control Division ("APCD") analyzed the costs of its

storage vessel measurement system. This analysis showed that use of a storage vessel measurement system is generally cost effective, with cost effectiveness increasing the more often measurement (which is carried out each time liquid is transferred from the tank to a truck, a process referred to as "loadout") occurs. APCD's analysis is below:

| Loadout frequency | Cost per ton VOC | TPY VOC reduced (per 8-tank battery) |
|---|---|---|
| 100 loads per year | $3,447/ton VOC | 5.1 |
| 365 loads per year | $944/ton VOC | 18.6 |

CAA Ex. 3 at 28.

209. The Colorado APCD found that these numbers were "extremely conservative" for several reasons, including the fact that "new and modified facilities that will be subject to these requirements will likely have production at such a level where loadout happens more often than even one time per day." CAA Ex. 3 at 28.

210. The Community and Environmental Parties and Oxy's proposal has important safety benefits. The National Institute of Occupational Safety and Health and the Occupational Safety and Health Administration issued a Hazard Alert in February 2016, explaining that the agencies had "identified health and safety risks to workers who manually gauge or sample fluids on production and flowback tanks from exposure to hydrocarbon gases and vapors, exposure to oxygen-deficient atmospheres, and the potential for fires and explosions." CAA Ex. 3 at 28. (citing NIOSH/OSHA Hazard Alert: Health and Safety Risks for Workers Involved in Manual Tank Gauging and Sampling at Oil and Gas Extraction Sites). The Hazard Alert explained that "[o]pening tank hatches, often referred to as 'thief hatches,' can result in the release of high concentrations of hydrocarbon gases and vapors" which "can have immediate health effects, including loss of consciousness and death." CAA Ex. 3 at 28. It went on to survey nine cases between 2010 and 2014 where a worker died while performing manual tank gauging. CAA Ex.

3 at 29.

211. The Hazard Alert recommended use of "alternative tank gauging and sampling procedures that enable workers to monitor tank fluid levels and take samples without operating the tank hatch" to reduce occupational hazards associated with manual gauging. CAA Ex. 3 at 29.

212. The Community and Environmental Parties and Oxy's proposal would require exactly that at new and modified facilities, creating an important co-benefit in terms of occupational safety at the same time as it reduces emissions of ozone-forming VOCs and other dangerous pollutants. CAA Ex. 3 at 29.

213. Although the New Mexico Oil Conservation Commission ("OCC") requires the use of auto-gauging technology at certain tanks, its rule is not as protective as the one set forth by the Community and Environmental Parties and Oxy. 9 Tr. 3015:3–9. First, the OCC rule only requires technology that can measure the quantity of liquid, whereas the Community and Environmental Parties and Oxy's proposal, like the Colorado rule, requires the use of technology that can automatically measure both the quantity and **quality** of liquids. 9 Tr. 3015:10–17. Second, the OCC rules does not expressly prohibit operators to open the thief hatch for gauging or sampling purposes, whereas the Community and Environmental Parties and Oxy's proposal does. 9 Tr. 3015:10-17, -18–21.

## IX. THE COMMUNITY AND ENVIRONMENTAL PARTIES AND OXY PROPOSE TO REDUCE EMISSIONS DURING COMPLETION AND RECOMPLETION OF WELLS AT 20.2.50.127 NMAC

### A. <u>The Community and Environmental Parties and Oxy Propose to Reduce Emissions During Completions and Recompletions</u>

214. The Community and Environmental Parties propose to require operators to route initial flowback to enclosed, controlled flowback vessels during completion and recompletion of

wells at newly proposed 20.2.50.127 NMAC. *See* Community and Environmental Parties' Ex. 1 at 35-36.

215. Oxy USA Inc. ("Oxy") supports the Community and Environmental Parties' completions/recompletions proposal, and has put forth the same proposal to the EIB. Oxy Reb. Ex. 2 at 3-4 [Holderman Reb. Test.]; Oxy Reb. Ex. 1 at 31-32 [Oxy Proposed Amendments to 20.2.50 NMAC]; 10 Tr. 3306:21-3307:14.

216. The Environment Department took no position on the completions/recompletions proposal because the Environment Department lacked sufficient expertise in the area, and recommended the EIB decide the issue based on the testimony of the other parties. 10 Tr. 3380:24-3381:9.

217. After drilling is complete and casing is set and cemented, the completion process begins. Most wells require reservoir stimulation to produce at attractive economic rates. This often involves injection of fluids and sands at high rates and pressures to create complex factures near the wellbore region. Once the injection process is complete, flow is reversed to evacuate as much fluid as possible. This phase is called "flowback." Initial flowback is often at high and variable rates, but soon settles into a predictable and declining rate and pressure regime, which is the "separation phase." EDF Ex. UU at 11-12 [Alexander Dir. Test.].

218. Flowback tanks are used during oil and gas pre-production activities and can lead to uncontrolled VOC and methane emissions if the tanks are not designed to contain these vapors. EDF Ex. EE at 23 [CDPHE Cost-Benefit Analysis for Regulation 7].

219. The Community and Environmental Parties and Oxy's completions/recompletions proposal applies following stimulation and during initial flowback. EDF Ex. UU at 12.

220. Under the Community and Environmental Parties and Oxy's proposal, flowback vessels have a pressure relief system to accommodate any safety issues that could arise from significant changes in pressure or flow rates. Any emissions from a pressure relief system must be routed to a flare equipped with an auto-ignitor or continuous pilot light to minimize venting and emissions during completions and recompletions. EDF Ex. UU at 12.

### B. <u>The Community and Environmental Parties and Oxy's Completions/Recompletions Proposal Is Modeled After Colorado Air Pollution and Oil and Gas Rules</u>

221. The completions/recompletions proposal is modeled after a rule that the Colorado Air Quality Control Commission ("CAQCC") adopted in 2020, and which became effective in May 1, 2021. EDF Ex. UU at 12; CAA Ex. 19 [attaching and highlighting relevant sections of Regulation 7]; EDF Ex. V at 180-82 [Regulation 7].

222. According to Colorado Department of Public Health and the Environment ("CDPHE"), which analyzed the rule for hearing, the rule will reduce VOC and methane emissions, and flowback vessels "are readily available and allow for cost effective capture and transmission of vapor emissions to an emission control device . . . ." EDF Ex. EE at 3, 2.

223. In addition, the Colorado Oil and Gas Conservation Commission ("COGCC") adopted these same CAQCC requirements to control emissions during completions and recompletions. That rule went into effect January 15, 2021. CAA Ex. 20 [attaching and highlighting COGCC Rule 2 CCR 404-1]; CAA Ex. 21 at 1 [Statement of Basis for COGCC Rule 2 CCR 404-1].

224. According to COGCC, "enclosure of flowback vessels will reduce emissions that may adversely impact public health and the environment . . . ." CAA Ex. 21 at 82.

### C. <u>The Community and Environmental Parties and Oxy's Completions/Recompletions Proposal Is Cost Effective</u>

225. CDPHE conducted a detailed cost-benefit analysis for its flowback vessel rule. *See* EDF Ex. EE. Its September 2020 analysis found that the flowback requirements could be implemented at a cost of $53.79 per ton of methane reduced over a three year average for a number of completions over 15 years. EDF Ex. EE at 28-29; EDF Ex. SS at 15 [Hull Dir. Test.].

226. Using New Mexico's average of methane-to-VOC ratio and New Mexico-specific completions data, EDF environmental engineer Hillary Hull calculated the cost for the completions/recompletions proposal would be **$259.48 per ton of VOC reduced**. Ms. Hull found this to be a cost effective means of mitigating flowback. EDF Ex. SS at 15; EDF Ex. UU at 14; 10 Tr. 3283:1-10.

227. EDF expert Tom Alexander spent more than 35 years working in the oil and gas industry. EDF Ex. KK [Alexander Resume]. This included working as a Staff Production and Completions Engineer, Completions Manager, and Vice President of Health, Safety and Environment for Southwestern Energy Company. EDF Ex. UU at 1; EDF Ex. KK at 1-2.

228. When Mr. Alexander was a Completions Manager, Southwestern Energy Company was completing 400 to 500 horizontal wells a year. According to Mr. Alexander "we understood the costs" of completions. 10 Tr. 3229:6-13.

229. In Mr. Alexander's expert opinion, the Community and Environmental Parties and Oxy's completions/recompletions proposal is cost effective, and the costs "are very, very reasonable." EDF Ex. UU at 13-14; 10 Tr. 3229:14-3230:17.

230. **No industry party** presented a cost-benefit analysis for the Community and Environmental Parties and Oxy's completions/recompletions proposal or rebutted EDF's cost-benefit calculations.

## D. The Community and Environmental Parties and Oxy's Proposal Can Be Safely Implemented

### 1. EDF and Oxy's experts agree the proposal is safe

231. According to Mr. Alexander, the Community and Environmental Parties and Oxy's completions/recompletions proposal can be safely implemented. 10 Tr. 3232:3-3234:5. He has particular expertise in completions and safety, and testified that "the operation is safe. . . . It's being done right now as we speak." 10 Tr. 3232:22-3233:5.

232. The Community and Environmental Parties and Oxy's completions/recompletions proposal is modeled after Colorado's air pollution agency and oil and gas agency rules. According to regulators at CDPHE, no operators have reported any concerns or issues complying with its rule. 10 Tr. 3232:3-15.

233. The Community and Environmental Parties and Oxy's completions/recompletions proposal **differs** from the Colorado rules in that the Colorado language requiring flowback vessels to be "vapor tight" was removed. This change was made to ensure that operators install a pressure relief system to prevent dangerous static buildup and discharge. 10 Tr. 3232:16-3233:5 [Alexander Test.]; 10 Tr. 3307:1-6 [Holderman Test.].

234. According to Oxy's expert Danny Holderman, an engineer who himself was a Drilling and Completions Manager at Oxy, Oxy Ex. 3 at 2 [Holderman CV], the proposal is consistent with safe operations. 10 Tr. 3307:1-6.

### 2. NMOGA'S witness mischaracterized the Community and Environmental Parties and Oxy's proposal, and the testimony has no application to the proposal before the EIB

235. NMOGA's consultant John Smitherman attempted to rebut Mr. Alexander and Mr. Holderman's testimony that the completions/recompletions proposal is safe. His concern had to do with the "static buildup" that could occur during initial flowback. 10 Tr. 3322:3-14.

However, Mr. Smitherman's testimony was based on his **incorrect characterization** that the proposal requires vessels to be "vapor tight." 10 Tr. 3319:25-3320:3321:6.[3]

236. Mr. Smitherman **mischaracterized** the Community and Environmental Parties and Oxy's proposal as requiring "vapor tight" vessels even though:

- Mr. Alexander and Mr. Holderman's testimony to the contrary directly proceeded Mr. Smitherman's that day of hearing, 10 Tr. 3232:16-3233:5; 10 Tr. 3307:1-6;

- Mr. Alexander and Mr. Holderman made it clear in their written rebuttal testimony that the "vapor tight" language had been removed, EDF Ex. WWW at 8; Oxy Reb. Ex. 2 at 3-4; and

- Mr. Smitherman conceded during cross-examination that he was aware that the "vapor tight" language had been removed because of safety concerns, 10 Tr. 3352:9-18.

237. Mr. Smitherman gave **no testimony** rebutting the safety of the completions/recompletions proposal that the Community and Environmental Parties and Oxy actually put forth removing the "vapor tight" language.[4]

238. Mr. Smitherman was unaware that the Colorado agency with the most oil and gas expertise, COGCC, had adopted the rule upon which the Community and Environmental Parties and Oxy's completions/recompletions proposal is based. 10 Tr. 3357:7-21, -3358:10-17.

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[3] Mr. Smitherman stated:

> So let's talk about flowback vessels. We've had a lot of conversation about those today.
>
> **Some parties have recommended that vessels that receive flowback fluid from wells after completion be required to be vapor tight**, I've heard some other terms, and have automatic tank gauging systems.
>
> **This is not advisable for safety concerns.**

10 Tr. 3319:25-3320:3321:6 (emphasis added).

[4] Furthermore, the one incident cited by Mr. Smitherman of a vessel blowing up occurred "when a flammable mix of air and gas had accumulated in the vessel . . . that a static spark had set off," 10 Tr. 3322:3-12. Mr. Smitherman presented **no evidence** there was any pressure relief system was in place, as contemplated by the Parties' proposal. 10 Tr. 3232:16-3233:5; 10 Tr. 3307:1-6.

239. Nor did he do his own due diligence with CDPHE or COGCC and inquire whether operators had raised concerns about complying with their rules. 10 Tr. 3359:1-8.

### E. <u>Neither EPA nor OCC Requires Flowback to Be Routed to Enclosed, Controlled Flowback Vessels During Initial Flowback</u>

240. Neither EPA nor the OCC requires flowback to be routed to enclosed, controlled flowback vessels during initial flowback. 10 Tr. 3233:7-3234:6; -3234:13-21.

241. The Community and Environmental Parties and Oxy's completions/recompletions proposal fills "a gap" in those rules in order to address emissions during the initial flowback stage. 10 Tr. 3234:3-6. Emissions during that period are not insignificant. *See* EDF Ex. EE at 26-27, Tables 12 & 13.

### F. <u>Uncontrolled Emissions During Completions and Recompletions Have Real Life Impacts on Persons Living in Close Proximity to Oil and Gas Development</u>

242. Don Schreiber has lived in close proximity to oil and gas development for over two decades. There are about 122 gas wells on or around his ranch, including 33 wells within one mile of his home. He has firsthand experience with the impacts of oil and gas development and with the impacts of completions and recompletions of wells, which are a particular concern for him. CAA Ex. 10 at 2-3 [Schreiber Dir. Test.].

243. In the early 2000's, well completions were still being done essentially the same way as they had been for over 50 years in the San Juan Basin. CAA Ex. 10 at 2-3.

244. The environmental impacts of blewie line completions were obvious to Mr. Schreiber and his family -- given all the audio, visual and olfactory evidence -- as they lived and worked around their ranch. The impacts came into especially sharp focus when one time as the flared gasses cooled, black "snowflakes" were created and drifted onto their home from a completion about 1¼ miles northeast of his ranch. CAA Ex. 10 at 2-3.

245. Moving away from outdated completions technology in order to avoid the harmful and toxic waste they created became a priority for Mr. Schreiber as ConocoPhillips planned to drill 44 wells in and around his ranch in 2008. At that time, Mr. Schreiber learned about "reduced emissions completions" or "RECs" that were already being done in the San Juan Basin and could help prevent the harmful emissions that he and his wife worried about. CAA Ex. 10 at 2-3.

246. Mr. Schreiber worked with ConocoPhillips and BLM to develop a program for drilling the 44 wells that would reduce impacts to the land, water, and air. In September 2008, they reached agreement on the use of REC equipment, closed loop systems, well spacing, road construction, reclamation of surface damage, and other considerations that allowed the 44 well drilling program to begin in late 2008. Between 2008 and 2012, 22 of the 44 wells in the program were completed or recompleted consistent with his agreement with ConocoPhillips. In 2012, natural gas prices declined and the drilling program stopped. *Id.* at 6.

247. In August of 2017, Hilcorp Energy Company ("Hilcorp") acquired ConocoPhillips' assets in the San Juan Basin, including all of the wells on and around the Schreibers' ranch. Since acquiring those assets, Hilcorp has refused to honor the agreement the Schreibers had with ConocoPhillips. Mr. Schreiber has witnessed Hilcorp completion operations in which flowback gasses are vented directly to the atmosphere, into the space where they live and work. CAA Ex. 10 at 7-8; CAA Ex. 18 [photographs of the Hilcorp operation with no REC equipment].

248. Mr. Schreiber strongly supports the Community and Environmental Parties and Oxy's completions/recompletions proposal. According to him:

> There is now a gaping hole in New Mexico regulations that creates a serious issue that has plagued my family and other families who live, work, and go to school close to where oil and gas wells exist or may be drilled in the future.
>
> Standing on my ranch, I can see Colorado, less than 25 miles away. To know that the same operators that are allowed to vent ozone precursors, methane, and toxic pollutants from completions and recompletions in New Mexico are prohibited from doing so in Colorado is deeply troubling. These operators drill into the same formation. They vent pollutants into the same air shed. And they threaten communities in the same region of the country.
>
> If, unlike Colorado, New Mexico fails to adopt reduced emissions completion/recompletion requirements -- requirements that are technically feasible, reduce waste, and protect our public health and environment -- our state will have ignored, denied and discounted years of successful capture of emissions, verified by industry and its experts.

CAA Ex. 10 at 9-10.

## X. THE COMMUNITY AND ENVIRONMENTAL PARTIES SUPPORT THE ENVIRONMENT DEPARTMENT'S PROPOSAL TO REDUCE EMISSIONS THROUGH LDAR AT 20.2.50.116 NMAC

### A. Frequent LDAR Inspections Are Necessary to Identify Leaks and Malfunctioning Equipment

249. The Environment Department proposes the following LDAR inspection frequencies at 20.2.50.116.C(3)(b), (c) NMAC:

> **(b)** for well sites and standalone tank batteries:
> **(ii)** annually at facilities with a PTE less than two tpy VOC;
> **(iii)** semi-annually at facilities with a PTE equal to or greater than two tpy and less than five tpy VOC; and
> **(iv)** quarterly at facilities with a PTE equal to or greater than five tpy VOC.
> **(c)** for gathering and boosting stations and natural gas processing plants:
> **(i)** quarterly at facilities with a PTE less than 25 tpy VOC; and
> **(ii)** monthly at facilities with a PTE equal to or greater than 25 tpy VOC.

*See* NMED Proposed 20.2.50 NMAC – Dec. 16, 2021 Version at 18.

250. The EIB should reject attempts to weaken the Environment Department's proposal by requiring less frequent inspections at well sites and compressor stations. The Environment Department's proposed LDAR inspection requirements are necessary to ensure that

operators find and fix leaking equipment promptly.

251. Dr. Lyon testified that the Permian Basin is very leaky. 8 Tr. 2542:5-2547:21.

252. In particular, direct measurement studies conducted in the Permian Basin between 2020 and 2021 demonstrate a leak rate of approximately 3%, which means that oil and gas operators in the Permian Basin leak 3% of the natural gas they produce. This is a higher leak rate than the national average estimated by EDF. 8 Tr. 2549:16-25.

253. According to Dr. Lyon, "The Permian has some of the highest emissions encountered in -- in the US . . . ." 8 Tr. 2548:5-7.

254. Measurements taken in 2018 at well pads in the New Mexico Permian Basin found high emissions that were "five to nine times higher than estimates based on the EPA National Emissions Inventory and about 10 times higher than based on the Greenhouse Gas Reporting Program." 8 Tr. 2544:17-21. EDF Ex. XX at 8.

255. Frequent inspections, using modern leak detection instruments, are necessary to identify leaks such as those commonly found in the Permian Basin. 8 Tr. 2541:1-3, 2546:9-12; EDF Ex. XX at 8.

256. There are several lines of evidence that support frequent inspections as proposed by the Environment Department. First, studies conducted in the Permian Basin as well as other U.S. and international oil and gas basins demonstrate that leaks are intermittent. 8 Tr. 2546:8-12, -2579:10-11; EDF Ex. XX at 7. As Dr. Lyon described: "super-emitters often are intermittent and may occur for a day or hours or even minutes, and -- and they can occur at all sites. So it's critical that sites are inspected to really find these super-emitting sites." 8 Tr. 2548:22-25, -2549:1; EDF Ex. XX at 10.

257. Second, a single large leak or "super-emitter" can release hundreds of tons of

pollution to the atmosphere. Super emitters are quite prevalent in the Permian Basin. A recent study using satellites detected over 37 very large leaks in the Permian that each had the potential to release over 4,000 tons per year of methane if left unabated for one year. 8 Tr. 2545:18-22. Another study conducted in August 2021 detected over 900 methane plumes from 500 sources that also could have emitted 200 tons per year of methane if left unabated for one year. 8 Tr. 2546:1-3. Because a single leak can be responsible for hundreds of tons of pollution, according to Dr. Lyon "using the number of leaks is an inappropriate way of estimating emissions or the efficacy of LDAR, I think particularly because it's really the magnitude of the emissions rather than the number of leaks." 8 Tr. 2549:6-10.

258. Third, leaks can re-occur at the same site over time. Many large plumes detected in 2021 at sources in the Permian Basin had also been detected previously at the same sources in 2019. 8 Tr. 2546:4-7.

259. Fourth, frequent inspections can not only detect and help mitigate leaks and super emitters, they can also help operators optimize their operations. 8 Tr. 2586:6-17, -2587:7-15; 10 Tr. 3224:5-18. A number of studies show that poorly maintained or operated equipment or operations can lead to leaks and super emitters. 8 Tr. 2555:1-13.

260. One example highlighted by Dr. Lyon is "incomplete combustion" or improperly operating flares. 8 Tr. 2580:15-19. Other examples include scheduled maintenance activities that can go wrong and lead to excess emissions, 8 Tr. 2588:9-16, as well as malfunctioning equipment. Examples of malfunctioning equipment identified by researchers in the Permian Basin include storage tanks. According to Dr. Lyon, one of the major sources of super emitters in the Permian and elsewhere are controlled storage tanks that are venting to the atmosphere due to some kind of equipment malfunction. EDF Ex. RR, 4. Another example is a malfunctioning

pneumatic controller. 7 Tr. 2225:12 to 7 Tr. 2227:14.

261. Frequent instrument-based inspections can help an operator identify malfunctioning equipment and other problems that can leak significant amounts of VOCs and methane to the atmosphere. According to Dr. Lyon, LDAR can help both "looking for equipment leaks, but also looking for underlying problems, including maintenance issues that could lead to future emissions." 8 Tr. 2586:8-12, -2588:9-16. As he explained, "it's critical that you're continuously looking for problems, doing frequent inspections, and I think even better would be having some kind of continuous monitoring of these facilities to make sure that -- that when operators notice problems that they're fixed very quickly." 8 Tr. 2581:13-18; EDF Ex. XX at 10-11.

262. As Mr. Alexander, reflecting on his extensive experience as an oil and gas engineer and former executive testified, "And in particular in the pneumatic controller field, we saw quite a few things that had to do with leaking seals, washed out seats, stuck valves, controller problems, spring issues, bad stem rods, et cetera. Conducting these inspections with an OGI [optical gas imaging] camera helped us identify when a particular procedure or piece of equipment was not operating as intended, which then allowed us to discover the reasons for it." 10 Tr. 3222:7-3223:10.

263. Frequent inspections as proposed by the Environment Department are necessary to identify stochastic and heterogeneous leaks from poorly operating or maintained equipment and operations, some of which can release hundreds of tons of pollution to the atmosphere per leak, while also helping operators optimize their operations.

### B. AVO Inspections Are Not a Substitute for Instrument-Based Inspections

264. Frequent inspections are only valuable if the methods operators use to look for

leaks are reliable. The Environment Department's proposed instrument-based inspections are essential to identifying leaks, including large leaks or super-emitters, as sensory-based audio, visual and olfactory ("AVO") inspections do not reliably detect leaks. 8 Tr. 2559:8-15, -2575:14-15; 10 Tr. 3223:15-3224:3, -3225:6-25.

265. AVO inspections are "highly dependent on both the kind of skill and attention of the operator and the conditions in the environment, including things like the wind . . . ." 8 Tr. 2559:10-13; 10 Tr. 3223:19-23. AVO inspections are also flawed because of a lack of verification. According to Mr. Alexander, ". . . there's no way to really document or verify AVO inspections other than just to take one's word for it and fill out a piece of paper, whereas routine OGI inspections are verifiable, and the evidence is physical and can be documented." 10 Tr. 3223:24-3224:3. Dr. Lyon testified that AVO cannot reliably detect emissions from malfunctioning pneumatic controllers, 7 Tr. 2228:6-16, or from large emitters such as unlit flares due to the height of the flares. 8 Tr. 2575:14-15.

### C. Low-producing Wells Can Be Significant Emitters and Must Be Inspected at Least Annually, as Proposed by the Environment Department

266. The scientific studies, including one conducted in the New Mexico Permian in 2018, show there is a weak relationship between well pad emissions and production. These studies demonstrate that low-producing wells can emit substantial amounts of VOC emissions, sometimes in excess of the potential to emit, due to malfunctions that cause abnormally high emissions. 8 Tr. 2540:18-2541:3.

267. Frequent inspections with instruments such as optical gas imaging cameras are necessary to mitigate emissions from these low-producing wells. 8 Tr. 2540:18-2541:3.

268. Dr. Lyon described three separate studies that identified significant leaks from low-producing wells. The first, the 2020 Robertson et al. study, analyzed site-level

measurements of over 70 Permian Basin well pads. The study found that wells with production below 10 barrels of oil equivalent per day ("BOE/d") had similar emissions as non-marginal wells, based on a comparison of absolute methane emissions and gas production by site.

269. The second study, conducted in 2020 by Deighton et al., summarized direct measurements of methane and VOC emissions from marginal oil and gas wells (wells producing less than one BOE/d) in the Appalachian Basin of southeastern Ohio. This study similarly found that marginal wells are a disproportionate source of methane and VOCs relative to oil and gas production. The study estimated that oil and gas wells in this lowest production category emit approximately 11% of total annual methane production from upstream oil and gas sources in the EPA greenhouse gas inventory, even though they produce about 0.2% of oil and 0.4% of all gas produced in the U.S. per year. 8 Tr. 2553:18-24, -2554:1-9.

270. The third study, conducted by Omara et al. in 2018, was a meta-analysis study of well pad emissions data from eight U.S. basins. Researchers obtained site-level methane emissions data from over 1,000 natural gas production sites, including 92 new site-level methane measurements in the Uinta, northeastern Marcellus, and Denver-Julesburg Basins, to investigate methane emissions characteristics and develop a new national methane emission estimate for the natural gas production segment. The study looked at natural gas production sites and categorized them as low (sites producing less than 100 million cubic feet a day ("Mcfd")), intermediate (100 to 1000 Mcfd), and high (more than 1000 Mcfd). Low natural gas production sites accounted for 85% of the total number of sites in the study yet were responsible for nearly two-thirds (63%) of the total methane emissions. 8 Tr. 2554:10-25.

271. Many studies identify poor maintenance as a driver of observed methane leakage at marginal sites. For example, Deighton et al. (2020) observed that the "state of maintenance at

these wells was poor;" some sites were in a state of disrepair (e.g., rusty well shafts, broken valves), while others were found to be venting as a result of fallen trees on the wellheads. 8 Tr. 2555:1-8. Similarly, Omara et al. (2016) reported "rusted or corroded well casings, field piping, regulators, valves and meters," and identified a few of these decrepit components as "substantial sources of leaks" at the low-production well sites. These avoidable methane emissions typically are not well represented in traditional emission factor calculations and contribute to the large differences that have often been observed between inventory-based estimates and measurement studies. 8 Tr. 2555:9-18.

272. These studies demonstrate that low production wells are likely a disproportionately large source of oil and gas methane emissions nationally. For example, for the very low production category of 0 to 1 BOE/d, Deighton et al. (2020) estimated these wells account for 11% of the production-related methane emissions in the EPA's Greenhouse Gas Inventory. EDF Ex. XX at 11 [Lyon Reb. Test.]. Similarly, Omara et al. (2018) estimated that 63% of production-related methane emissions come from well sites that produce less than 100 Mcfd. EDF Ex. XX at 11. Therefore, mitigating the methane emitted from these sites could reduce a significant proportion of oil and gas methane emissions nationally. 8 Tr. 2555:19-24.

273. These studies demonstrate that inspecting low-producing wells is essential to curbing emissions from oil and gas facilities. 8 Tr. 2555:19-24

### D. <u>ERG Conservatively Estimated Pollution Reductions that Can Be Abated by Frequent Instrument-Based Inspections</u>

274. The Environment Department conservatively estimated the pollution reductions that can be achieved by its proposed LDAR provisions. EDF analysis, based on direct measurements of emissions taken from oil and gas sources in New Mexico as well as other U.S. basins, demonstrates that the proposed inspections will reduce significantly more pollution than

ERG estimates.

275. ERG estimated the Environment Department's LDAR proposal would apply to approximately 24,000 well sites in New Mexico and would result in the reduction of 7,131 tons of VOCs per year. NMED Ex. 69; 8 Tr. 2551:3-6.

276. According to EDF, this is a gross underestimate of the pollution from New Mexico well sites that can be reduced by frequent leak inspection and repair requirements based on recent direct measurement studies. EDF Ex. XX at 6-7; 8 Tr. 2551:6-11.

277. In particular, a 2018 study conducted by Robertson et al. estimated annual average well pad emissions in the New Mexico Permian Basin are 37 tons methane per year. 8 Tr. 2551:12-15. Using New Mexico gas composition, EDF converted the per well site methane emissions to VOCs. 8 Tr. 2551:16-18. Using these calculations, EDF estimates the average well pad in the Permian emits approximately 11 tons of VOC per year. 8 Tr. 2551:16-18. EDF then applied this per-well VOC emission factor to the 24,000 well sites in New Mexico that are subject to NMED's proposal. This calculation indicates that the total unabated VOC emissions from New Mexico well sites is closer to **260,000 tons of VOCs per year**. 8 Tr. 2551:18-20. This is a significantly higher estimate of emissions that can be abated by LDAR inspections than the 7,131 tons of VOCs estimated by ERG estimated.

278. Direct measurements of emissions from well sites in the Permian Basin indicate that the Environment Department's proposed LDAR requirements underestimate actual emission reductions because ERG grossly underestimated the baseline emissions that can be abated by frequent instrument-based inspections. 8 Tr. 2552:20-25.

279. Other studies conducted in the Permian Basin indicate that Robertson's estimate of well site emissions is actually low, further underscoring the cost effectiveness of the

Environment Department's proposed LDAR program. 8 Tr. 2551:21-25; 8 Tr. 2552:1-2.

280. As Dr. Lyon testified,

> . . . other studies suggest that -- that this estimate is actually quite low, because the Robertson, et al. study used vehicles that would miss a lot of the elevated sources. So things like an unlit flare, the emission plume would actually pass over the vehicle and not be included. So -- so we think it's actually a conservative estimate.

8 Tr. 2551:21-25; 8 Tr. 2552:1-2.

281. Dr. Lyon refuted NMOGA's assertions that ERG overestimated the reductions associated with the Environment Department's proposed LDAR program. 8 Tr. 2552:12-18. As Dr. Lyon pointed out, NMOGA based its estimate of emissions reductions on estimates submitted by operators to the EPA pursuant to EPA's Greenhouse Gas Reporting Program. 8 Tr. 2552:3-11.

282. Direct measurement studies conducted by EDF in the Permian Basin as well as numerous other basins throughout the U.S. demonstrate that emission estimates consistently underestimate measured emissions by significant magnitudes. 8 Tr. 2542:4-8 Tr. 2547:21.

283. As Dr. Lyon testified, a 2018 meta-analysis of the various direct measurement studies conducted by EDF and other scientists concluded that measured U.S. emissions are 70% higher than estimates generated by EPA. 8 Tr. 2549:17-25; 8 Tr. 2550:1.

284. The available scientific studies refute NMOGA's claim that ERG overestimated emission reductions.

### E. <u>ERG Conservatively Estimated Compliance Costs</u>

285. The Environment Department's estimate of the costs and VOC reductions associated with proposed 20.2.50.116 are reasonable and, if anything, quite conservative. 8 Tr. 2605:24-2606:4; EDF Ex. JJJ at 6.

286. EDF reviewed ERG's LDAR Reductions and Costs VOC Spreadsheet, NMED Ex. 69. Using more recent inspection cost information than ERG, EDF estimates the per well site cost of conducting semi-annual inspections is $1,658 for semi-annual inspections. This is 30% lower than ERG's estimate. 8 Tr. 2602:13-14. EDF's cost estimate represents the full cost of implementing an LDAR program in-house, which includes LDAR set up costs, survey costs, repair costs, and recordkeeping and reporting costs. 8 Tr. 2602:9-14.

287. ERG relied on site-level data taken from EPA's 2016 Control Techniques Guidelines ("CTG") to estimate the costs of conducting annual, semi-annual, and quarterly inspections. 8 Tr. 2602:15-18. EPA assumed $1,318 for annual OGI, $2,285 for semi-annual OGI, and $4,220 for quarterly OGI -- using 2012 dollars. 8 Tr. 2602:18-20. ERG assumed the same costs as assumed by EPA in 2016, except that ERG scaled the costs for inflation using the Chemical Engineering Plant Cost Index from 2012 dollars to 2019 dollars. 8 Tr. 2602:21-24. This resulted in ERG estimates of $1,370 for annual OGI, $2,375 for semi-annual OGI, and $4,385 for quarterly OGI. 8 Tr. 2602:15-15; 8 Tr. 2603:1-4. ERG assumed all sites would conduct semi-annual inspections at an annual cost of $2,375. 8 Tr. 2603:1-4.

288. A comparison of LDAR compliance costs relied on by the Colorado Air Pollution Control Division for its tiered LDAR program in 2014 and ERG's analysis underscores the conservative nature of ERG's cost estimates. In 2014, Colorado adopted a similar inspection program to that proposed by the Environment Department. 8 Tr. 2603:17-19. Colorado's program, like the Environment Department's proposal, requires differing inspection frequencies based on a facility's emissions. 8 Tr. 2603:19-21. In 2014, Colorado estimated the average cost effectiveness of conducting instrument-based inspections at well sites to be $1,259 per ton for well production facilities. 8 Tr. 2603:22-25. This assumed a tiered program consisting of

monthly, quarterly, annual, and once-in-a-lifetime inspections. 8 Tr. 2603:25-8 Tr. 2604:1. While the comparison is not exact, the two estimates indicate the Environment Department's estimate is conservative. 8 Tr. 2604:5-7.

289. Information submitted by operators to EPA in compliance with EPA LDAR requirements further underscores the likelihood that ERG has overestimated costs. 8 Tr. 2604:8-16. Reports submitted by operators to EPA in 2018 demonstrate that the average time to conduct an LDAR survey is decreasing as the operators have been implementing state and federal LDAR programs. 8 Tr. 2604:8-22.

290. In 2018, M.J. Bradley analyzed approximately 120 reports containing compliance data from LDAR surveys of 3,832 well sites conducted by operators in 2017 and 2018. Of the well sites surveyed, 3,202 contain information on survey time. 8 Tr. 2604:15-16. These reports indicate that average time to conduct an LDAR survey is decreasing as the operators have been implementing state and federal LDAR programs. 8 Tr. 2604:17-20. The reports reviewed by M.J. Bradley indicate an average LDAR inspection takes approximately 1.25 to 1.6 hours per well, including travel time. 8 Tr. 2604:8-22.

291. Information from a new study demonstrates that inspection times are likely to continue to decrease due to the emergence of even more efficient screening methods such as aerial surveys which operators can use to screen multiple facilities for leaks in a much shorter time frame than can be achieved using ground based OGI methods. 8 Tr. 2604:8-2605:5. The rapid growth in advance methane detection technologies such as aerial surveys is likely to continue to reduce inspection times and thus LDAR compliance costs. 8 Tr. 2604:23-8 Tr. 2605:18.

292. The Environment Department's proposal allows operators to obtain approval to

use alternative equipment leak monitoring plans. It is likely many of these plans will rely on a combination of fixed censors, aerial surveys, and satellites. 8 Tr. 2605:18-23.

293. In sum, recent data regarding actual inspection time and the emergence of more efficient LDAR inspection methods indicates that the Environment Department's estimate of the costs associated with conducting ground based OGI or Method 21 vehicle inspections is quite conservative. 8 Tr. 2605:16-2606:4.

### F. NMOGA's Proposed LDAR Would Result in Thousands of Tons of Unabated Pollution that Can Be Cost Effectively Reduced

294. The EIB should reject attempts to weaken the Environment Department's LDAR requirements by requiring less frequent inspections, as proposed by NMOGA.

295. NMOGA proposes annual inspections at well sites with a potential to emit 10 tpy of VOCs. Similarly, NMOGA proposes semi-annual inspections at well sites emitting between 10 and 25 tpy of VOCs, and quarterly inspections at well sites emitting more than 25 tpy of VOCs. EDF Ex. JJJ at 4; 8 Tr. 2608:6-18.

296. NMOGA's proposal would increase the emission thresholds triggering each LDAR tier **fivefold** compared to the Environment Department's proposal and would result in substantial pollution to the atmosphere that can be cost effectively mitigated. EDF Ex. JJJ at 4; 8 Tr. 2608:6-18.

297. EDF's analysis shows that NMOGA's proposal would result in **23,000 additional tons of VOCs and 79,000 additional tons of methane** left unabated annually. EDF Ex. JJJ at 4; 8 Tr. 2608:22-25.

298. EDF's analysis shows that NMOGA has significantly over estimated compliance costs for the Environment Department's proposed LDAR requirements. EDF Ex. JJJ at 3; 8 Tr. 2606:6-16. NMOGA's estimate of the costs of conducting inspections is magnitudes higher than

estimates conducted by the Environment Department as well as other regulators who have adopted LDAR provisions. NMOGA estimates a per well site inspection cost of $6,400. 8 Tr. 2606:23-24. This is 169% higher than NMED's, 286% higher than EDF's estimate, and 168% to 228% higher than EPA's. EDF Ex. JJJ at 7-8. NMOGA bases this inspection cost, in part, on comments submitted to EPA by API in 2016. 8 Tr. 2606:16-19. EPA rejected the API costs, however, when it finalized its requirements to reduce ozone precursors from oil and gas sources in 2016. 8 Tr. 2607:2-4.

299. Ms. Hull reviewed NMOGA and API's comments and found that API's reasoning was critically flawed and NMOGA's reliance upon this information is misplaced. EDF Ex. JJJ at 7; 8 Tr. 2606:16-2607:9.

300. API presumed that all operators would create their own in-house LDAR survey program from scratch rather than employ third-party providers. 8 Tr. 2607:5-9. This assumption inflates the cost of implementing an LDAR program. 8 Tr. 2607:8-9. For small operators it is often more economical to hire a third-party contractor to conduct leak inspections than to purchase its own infrared camera and other equipment necessary to conduct inspections. 8 Tr. 2607:10-14. For example, when Colorado first adopted its LDAR program in 2014, it assumed that operators who have less than 500 wells would hire a third-party contractor to conduct LDAR as they would not be able to fully utilize an infrared camera. 8 Tr. 2607:15-19; EDF Ex. BB. API also used basin-level averages to imply that for each survey, an operator would travel approximately 340 miles roundtrip. Ms. Hull testified that this estimate appears "extraordinarily high." 8 Tr. 2607: 20-23; EDF Ex. JJJ, pp. 7-8. 8 Tr. 2607:25-2608:3.

301. NMOGA provided no support for how, if at all, API's comments to EPA that were rejected by EPA, are applicable to this proceeding.

302. The EIB should reject NMOGA's weaker LDAR proposal as well as its inflated cost estimates.

### G. The Environment Department's LDAR Program for Compressor Stations Is Reasonable and Should Be Adopted in 20.2.50.116 NMAC

#### 1. Gathering compressor stations are one of the largest sources of emissions

303. Gathering compressor stations are one of the largest sources of emissions, contributing about 20% of total emissions. 8 Tr. 2546:16-18.

304. According to Dr. Lyon, there have been several recent studies that have looked at methane emissions from gathering and boosting stations, including an EDF-sponsored study for Colorado State University that used site-level measurements to estimate gathering compressor emissions. Colorado State University has conducted subsequent work looking at component-level emissions and found that compressors can have leaks and anomalous emissions. 8 Tr. 2579:22-2580:6.

305. Recent work by EDF, including aerial surveys by Carbon Mapper, have found that in the Permian Basin, gathering stations are a disproportionately large source of emissions compared to other basins, with the stations themselves accounting for about 25% of the measured methane emissions from large emitters. 8 Tr. 2580:7-13. Many of these emissions are due to both leaks and inefficient operations, including flares that are not properly burned. 8 Tr. 2580:14-19. In the Permian in particular, there are pressure issues where some of the gathering pipelines are over pressurized, and have anomalous pressure relief venting from these gathering stations, causing very high emissions. 8 Tr. 2580:20-24. For this reason, in Dr. Lyon's opinion, it is critical that the sites are maintained well, including making sure they are operating under proper pressure, to avoid large emissions from gathering compressor stations. 8 Tr. 2580:25-

2581:4.

306. It is critical to have frequent LDAR at gathering stations because they can have anomalous very high emission events. 8 Tr. 2581:7-12. Through EDF's analyses, Dr. Lyon has found that these emission events can be short-term, often only a couple hours or days. 8 Tr. 2581:7-12. It is critical to continuously look for problems by doing frequent inspections and, if possible, have some kind of continuous monitoring of these facilities to make sure that when operators notice problems, they are fixed very quickly. 8 Tr. 2581:13-18.

**2. <u>The Environment Department's proposal will reduce significant pollution from compressor stations</u>**

307. The Environment Department's proposal requires quarterly LDAR for gathering compressor stations emitting less than 25 ton per year VOC and monthly LDAR for compressor stations emitting equal to or greater than 25 ton per year VOC. 8 Tr. 2609:5-8.

308. Based on Ms. Hull's analysis, the Environment Department's LDAR requirements for well sites and gathering and boosting compressor stations is highly cost effective and will remove 153,000 tons of VOCs from the atmosphere annually.

308n addition, the program has a co-benefit of reducing 531,000 tons of methane annually. 8 Tr. 2610:9-14.

**3. <u>NMOGA's proposal will leave thousands of tons of pollution unabated</u>**

309. Ms. Hull estimated the pollution that will be left unabated if the EIB adopts NMOGA's compressor stations LDAR proposal. According to Ms. Hull, NMOGA's proposal to decrease the frequency of inspections at well sites and compressor stations will result in the release of thousands of additional tons of volatile organic compounds and methane to the atmosphere annually. These emissions contribute to unhealthy levels of ozone pollution and the climate crisis. 8 Tr. 2594:22-2595:3.

310. Compared to the Environment Department’s proposal, NMOGA’s proposal decreases the inspection frequency from monthly to quarterly for compressor stations emitting 25 ton per year VOC or more and from quarterly to semi-annually for those emitting below 25 ton per year VOC. 8 Tr. 2609:9-13.

311. Ms. Hull estimates NMOGA's proposal will result in up to **8,400 additional tons of VOC and up to 34,000 additional tons of methane leaked annually** using EDF emission estimates that would not be leaked to the atmosphere if the Board adopted the Environment Department's proposal. 8 Tr. 2609:19-25; EDF Ex. JJJ at 5.

312. Ms. Hull found that NMOGA's proposal to reduce the frequency of leak inspections at compressor stations will result in a 20% decrease in emission reductions from gathering and boosting sites. EDF Ex. JJJ at 3.

313. Frequent LDAR, as the Environment Department has proposed, can effectively curb the unhealthy levels of ozone pollution that form in part from oil and gas operations, including from compressor stations. 8 Tr. 2595:4-5.

## XI. THE COMMUNITY AND ENVIRONMENTAL PARTIES SUPPORT THE ENVIRONMENT DEPARTMENT’S PROPOSAL TO REDUCE EMISSION DURING LIQUIDS UNLOADING AT 20.2.50.117 NMAC

### A. The Environment Department’s Liquids Unloading Proposal Is Reasonable and Technically Feasible and Should Be Adopted

314. The Environment Department has proposed a leading provision to reduce emissions during liquids unloading. 10 Tr. 3216:25-3217:2. Under the Environment Department’s proposal, operators must use a specific best management practice to avoid the need to venting natural gas associated with liquid unloading, such as a plunger lift, artificial lift or control device. 20.2.50.117.B(1) NMAC [Dec. 16 2021].

**B. The Environment Department Has Proposed Technically Feasible and Economically Reasonable Provisions**

315. EDF witness Tom Alexander testified the best management practices proposed in 20.2.50.117.B(1) NMAC (Dec. 16 2021) are all effective, cost effective, and technologically practicable methods to reduce emissions during liquids unloading. EDF Ex. WW at 2. In his experience, these are not only standard industry practices, but have been in the production engineering toolkit for decades. EDF Ex. WW at 2-3; 10 Tr. 3216:25-3218:6, -3220:15-3221:9.

316. In Mr. Alexander's experience, artificial lift is a preferred method of keeping a well unloaded and producing efficiently. And in the end, a well that is produced properly will have a higher estimated ultimate recovery. 10 Tr. 3231:5-3232:1.

**C. The EIB Should Reject IPANM's Proposed Revisions as Unnecessary and, If Adopted, Would Reduce the Emissions Reductions**

317. According to Mr. Alexander, IPANM's revisions significantly weaken the proposed rule and will result in less emissions reductions. EDF Ex. WW, p. 4.

318. IPANM proposes to limit the applicability of the liquids unloading provision to manual unloading events only. IPANM Ex. 1 at IPANM_0006 [IAPNM proposed amendments to 20.2.50 NMAC]. In Mr. Alexander opinion, that this would significantly narrow the applicability of the rule by completely ignoring emissions from artificial lift technologies used during non-manual unloading activities. While resulting in far fewer emissions than manual unloading, the use of artificial lift technologies to unload a well nevertheless results in some emissions. EDF Ex. WW at 4.

319. Mr. Alexander strongly disagrees with IPANM's proposal to strike the use of a plunger lift, use of an artificial lift, and use of a control device as listed methods to reduce emissions during unloading events in proposed 20.2.50.117.B(3) NMAC for two reasons. (This

provision has been moved by the Environment Department to 20.2.50.117.B(1) NMAC in its most recent proposal. (Proposed 20.2.50.117 NMAC, Dec. 16, 2021)). EDF Ex. WW at 4. First, the methods to reduce emissions during unloading listed by the Environment Department are all feasible and economic. 10 Tr. 3220:21-3221:9; EDF Ex. WW at 4. Second, because the rule only requires "at least one of the following best management practices," the operator is free to select the method best suited to the particular well. 10 Tr. 3251:11-3252:13.

**D. The EIB Should Reject NMOGA's Proposed Revisions to 20.2.50.117 NMAC**

320. In Mr. Alexander's opinion, NMOGA's revisions significantly weaken the proposed rule and will result in fewer emissions reductions. EDF Ex. WW at 5.

321. Mr. Alexander strongly disagrees with NMOGA's proposal that the Environment Department revise its proposal to apply only to manual unloading. He strongly disagrees with NMOGA's assertion that "only manual liquid unloading involving venting to the atmosphere would result in emissions" since artificial lift methods, such as plunger lifts, can result in some minimal emissions. EDF Ex. WW at 5.

322. Mr. Alexander disagrees that operators need two years to comply with the liquid unloading provisions in 20.2.50.117.B NMAC, as proposed by NMOGA. The Environment Department originally proposed that operators would need to comply with the liquids unloading provisions when the rule becomes effective, and Mr. Alexander supports this implementation date as reasonable. EDF Ex. WW at 6-7.

323. Mr. Alexander disagrees with NMOGA's proposal to strike 20.2.50.117.C(1)(b) NMAC, which requires monitoring the flowrate during unloading, because there is no justification for striking this provision. EDF Ex. WW at 7.

324. Mr. Alexander agrees with NMOGA witness John Smitherman that the

Environment Department should allow operators to use "smart" systems to reduce emissions during an unloading event. In Mr. Alexander's view, this is a wise application of new and emerging technologies to optimize well production and economics. However, he cautions it is important that surface facilities and artificial lift systems be altered and installed to reduce emissions as much as possible. Smart technology cannot be a license to unnecessarily emit natural gas if other technologies can be used to avoid emissions. EDF Ex. WW at 7.

## XII. NMOGA'S COST ANALYSIS IS UNRELIABLE

325. NMOGA presented evidence that purported to show the costs to the oil and gas industry in New Mexico of the proposed rule. The evidence was a memorandum from John Dunham and Associates, and the testimony of Mr. John Dunham. NMOGA SOI App. A6 (attachment); NMOGA SOI App. A6[5]; 3 Tr. 667:19-679:7.

326. Three witnesses, including two witnesses testifying on behalf of the Environment Department, testified that this evidence should not be given any weight. NMED Reb. Ex. 19 at 2 [Day & Palmer Reb. Test.]; 3 Tr. 757:2-7, 767:22-768:1, 830:11-15.

327. In his memorandum, Mr. Dunham overstated the costs of the proposed rule by overstating the number of oil and natural gas wells that would be subject to the emission control requirements of the proposed rule. His memorandum states that there are 33,293 oil wells and 50,954 natural gas wells, for a total of 84,287 oil and gas wells in New Mexico. NMOGA App. A6 Attachment at 4, Table 3; *see also* 3 Tr. 741:7-19.

328. According to the Environment Department witness Brandon Powell, the Engineering Bureau Chief, Oil Conservation Division of the N.M. Energy, Minerals and Natural

[5] NMOGA did not file these documents as exhibits. Rather, the written testimony of Mr. Dunham is appended to the Association's Statement of Intent (SOI) to Present Technical Testimony as Appendix A6. Mr. Dunham's memorandum is an attachment to Appendix A6.

Resources Department, there are 26,808 active oil wells and 26,530 active natural gas wells, for a total of 53,338 active oil and gas wells in New Mexico. 3 Tr. 741:7-19; NMED Reb. Ex. 17 [Powell Reb. Test.] at 2-4.

329. The Environmental Defense Fund's witness Maureen Lackner, an economist, similarly concluded that there are approximately 54,000 active oil and gas wells in New Mexico. EDF Reb. Ex. EEE at 3 [Lackner Reb. Test.]; 3 Tr. 825:25-826:3.

330. The Environment Department's count of the number of active wells in New Mexico subject to the proposed rule is 37% lower than that stated by Mr. Dunham in his memorandum. 3 Tr. 741:17-19.

331. Ms. Lackner also concluded that many of the approximately 54,000 active wells are either located in counties not subject to the proposed rule, or are subject to the small business exemption in the proposed rule. She thus concluded that 49,615 wells would actually be required to install emission controls under the proposed rule. EDF Reb. Ex. EEE at 3 [Lackner Reb. Test.]; 3 Tr. 825:13-826:16.

332. The number of wells is a foundational data point underpinning Mr. Dunham's entire economic analysis. Overstating the number of wells leads to an overestimate of the compliance costs associated with the proposed rule. 3 Tr. 759:15-19; *see also* NMED Reb. Ex. 19 at 6 [Day & Palmer Reb. Test.].

333. In his memorandum, Mr. Dunham further overstated the costs of the proposed rule by tallying the costs of pollution control equipment per individual well rather than per well site. NMOGA App. A6 Attachment at 7, Table 7; *see also* NMED Reb. Ex. 19 at 7 [Day & Palmer Reb. Test.]; 3 Tr. 760:11-20.

334. However, some of the pollution control equipment required by the proposed rule is installed at a well site and provides adequate controls for two or more wells located at that site. Costs for certain pollution control equipment therefore should be tallied at the well site. NMED Reb. Ex. 19 at 6-7 [Day & Palmer Reb. Test.]; 3 Tr. 759:25-760:20.

335. In his memorandum, Mr. Dunham overestimated the costs of pollution control equipment for glycol dehydrators. Mr. Dunham estimated the capital costs for pollution control equipment for glycol dehydrators to be $794 million in the first year. NMOGA App. A6 Attachment at 7, Table 7; *see also* NMED Reb. Ex. 19 at 10-11 [Day & Palmer Reb. Test.]; 3 Tr. 764:12-25.

336. The Environment Department's witness, Brian Palmer, a senior scientist with ERG, estimated the total annual costs for controlling pollution from glycol dehydrators to be $4.6 million based on ERG calculations. 3 Tr. 765:1-8; NMED Ex. 77; *see also* NMED Reb. Ex. 19 at 10 [Day & Palmer Reb. Test.].

337. In his memorandum, Mr. Dunham overestimated the costs of pollution control equipment for storage tanks, estimating the capital costs for pollution control equipment for storage tanks to be $185 million in the first year. NMOGA App. A6 Attachment at 7, Table 7; *see also* NMED Reb. Ex. 19 at 11 [Day & Palmer Reb. Test.]; 3 Tr. 766:1-2.

338. Mr. Palmer estimated the total annual costs for controlling pollution from storage tanks to be $69 million based on ERG calculations. 3 Tr. 766:2-3; NMED Ex. 100; *see also* NMED Reb. Ex. 19 at 11 [Day & Palmer Reb. Test.].

339. In his memorandum, Mr. Dunham includes costs for pollution control from several specific pollution sources, including compressors, gas well liquid unloading, glycol dehydrators, hydrocarbon liquid transfers, pipeline pig launching and receiving, pneumatic

controllers and pumps, and storage tanks. He also cumulatively includes costs for various specific pollution control equipment, including enclosed combustion devices and thermal oxidizers, vapor recovery units, and open flares. This appears to result in double-counting of costs, as the listed pollution control equipment is used to control emissions from the listed pollution source equipment. NMOGA App. A6 Attachment at 7, Table 7; NMED Reb. Ex. 19 at 11-12 [Day & Palmer Reb. Test.]; 3 Tr. 766:14-767:10.

340. In his memorandum, Mr. Dunham calculates the net present value of costs over five years. However, a more realistic time period would be 10 to 20 (or 15) years based on the usual useful life of pollution control equipment. NMOGA App. A6 Attachment at 8, Table 8; NMED Reb. Ex. 19 at 13-14 [Day & Palmer Reb. Test.]; 3 Tr. 768:25-769:11.

341. In his memorandum, Mr. Dunham assumes that the bulk of the capital costs of the proposed rule will be incurred in the first year. NMOGA App. A6 Attachment at 7-8; NMED Reb. Ex. 19 at 14 [Day & Palmer Reb. Test.]; EDF Reb. Ex. EEE at 3 [Lackner Reb. Test.]; 3 Tr. 769:12-14; 826:22-25.

342. However, capital costs are typically spread out over the life of the equipment. NMED Reb. Ex. 19 at 14 [Day & Palmer Reb. Test.]; 3 Tr. 769:12-21.

343. Moreover, several components of the proposed rule allow for delayed compliance. Specifically, the proposed rule allows operators up to seven years (until January 1, 2029) to phase in control requirements for existing natural gas-fired spark-ignition engines; two years from the effective date of the rule to phase in requirements for existing compressors; two years from the effective date of the rule to control existing glycol dehydrators; one year to control existing heaters; one year to phase in requirements for hydrocarbon liquid transfers; three years to control existing pneumatic pumps; three years to control existing storage tanks with a potential

to emit between two and ten tpy of VOCs; one year to control existing storage tanks with a potential to emit greater than ten tpy of VOCs; and a phase-in over eight years to retrofit existing pneumatic controllers. EDF Reb. Ex. EEE at 4 [Lackner Reb. Test.]; 3 Tr. 826:22-827:2.

344. The industry will not need to incur all of the costs in the first year. It is not correct to assume that industry will incur the vast majority of costs in the first year. Industry has both the ability to phase in compliance activities and the ability to finance compliance activities over a longer time-frame. 3 Tr. 810:16-811:6.

345. An "externality" is a cost that is external to the price paid for a particular good that is not reflected in the market price for that good and is borne by other sectors of society. 3 Tr. 694:22-695:4.

346. Environmental pollution is a common example of an "externality." 3 Tr. 695:8-16.

347. Mr. Dunham acknowledged that the emissions of harmful pollutants from oil and gas production results in costs to other sectors of the economy, which he referred to as "externalities." In his memorandum, however, Mr. Dunham did not consider the cost savings of the proposed rule due to reduced emissions of harmful pollutants. 3 Tr. 689:2-24.

348. In his memorandum, Mr. Dunham omits social costs imposed on society by the oil and natural gas industry. Social costs include climate damages from carbon dioxide emissions when oil and gas is combusted, which the Environmental Defense Fund estimated at a minimum of $51 per metric ton. Social costs also include climate damages from methane emissions that occur throughout the supply chain, estimated at a minimum of $1,500 per metric ton. EDF Reb. Ex. EEE at 4-5 [Lackner Reb. Test.]; 3 Tr. 828:12-21; *see also* EDF Ex. GGG; EDF Ex. HHH.

349. In his memorandum, Mr. Dunham omits social costs to the people of New Mexico who would be exposed to unhealthy air. The analysis should account for local environmental damages incurred in New Mexico through degraded air quality and related health impacts associated with emissions of volatile organic compounds and oxides of nitrogen. EDF Reb. Ex. EEE at 5 [Lackner Reb. Test.]; 3 Tr. 828:22-829:4.

350. Mr. Dunham acknowledged it is "possible" that the emissions of harmful pollutants result in increased medical bills. In his memorandum, however, Mr. Dunham did not consider the cost savings of the proposed rule in decreased medical bills. 3 Tr. 689:25-690:7.

351. Mr. Dunham acknowledged it is "possible" that the emissions of harmful pollutants result in lost days of work due to illness. In his memorandum, however, Mr. Dunham did not consider the cost savings of the proposed rule in fewer lost days of work due to illness. 3 Tr. 690:8-17.

352. Mr. Dunham acknowledged that the emissions of harmful pollutants could "possibly" result in higher mortality rates. In his memorandum, however, Mr. Dunham did not consider the cost savings of the proposed rule due to lower mortality rates. 3 Tr. 690:18-691:3.

353. In his memorandum, Mr. Dunham did not consider the benefits to the public from breathing clean air that would result from the proposed rule. 3 Tr. 691:4-12.

354. In his memorandum, Mr. Dunham assumes that the proposed rule will not create jobs. This assumption is likely incorrect. Research prepared by Datu Research for the Environmental Defense Fund finds that the methane mitigation industry is a young, but fast-growing source of high-quality jobs across the country. These companies anticipate hiring more employees if additional methane regulations are put in place at the state or federal level. EDF

Reb. Ex. EEE at 5 [Lackner Reb. Test.]; 3 Tr. 829:20-830:3; *see also* EDF Ex. III [Datu Research report].

355. Mr. Dunham acknowledged that the manufacture of the pollution control equipment that would be required by the proposed rule would create manufacturing jobs. In his memorandum, however, Mr. Dunham did not consider the jobs that would be created by the manufacture of pollution control equipment required by the proposed rule. 3 Tr. 696:17-698:2.

356. Mr. Dunham acknowledged that the installation of the pollution control equipment that would be required by the proposed rule would "lead to" jobs. In his memorandum, however, Mr. Dunham did not consider whether jobs would be created by the installation of pollution control equipment required by the proposed rule. 3 Tr. 698:3-15-698:2.

357. Mr. Dunham acknowledged that the maintenance of the pollution control equipment that would be required by the proposed rule would "create activity" for workers. In his memorandum, however, Mr. Dunham did not consider whether jobs would be created by the maintenance of pollution control equipment required by the proposed rule. 3 Tr. 698:16-699:5.

358. Mr. Dunham stated that the proposed rule would both create jobs and take away jobs, but he did not know what the net effect on jobs would be. 3 Tr. 713:4-23.

359. The manufacture and installation of the pollution control equipment that would be required by the proposed rule would generate tax revenues. In his memorandum, however, Mr. Dunham did not consider the tax revenues that would be generated by the manufacture and installation of pollution control equipment required by the proposed rule. 3 Tr. 699:6-22.

360 In his memorandum, Mr. Dunham does not consider the additional revenue producers could realize from captured gas. The proposed rule would require operators to capture some of the natural gas that would otherwise leak. This natural gas can be marketed. The

Environmental Defense Fund estimates that New Mexico producers waste about $300 million worth of natural gas per year (based on assumption of $4 Mcf of natural gas and that natural gas is 80% methane). EDF Reb. Ex. EEE at 4 [Lackner Reb. Test.]; 3 Tr. 827:25-828:10; 727:23-728:5.

361. Mr. Dunham's firm conducts cost-benefit analyses. The firm's brochure advertises cost-benefit analysis as one of the services it provides. Mr. Dunham has personally prepared "very many" cost-benefit analyses. 3 Tr. 700:18-701:3.

362. However, Mr. Dunham's memorandum is not a cost-benefit analysis; it is an analysis of costs to the oil and gas industry. 3 Tr. 700:13-17; 727:21-22.

363. Some of the data in the memorandum prepared by Mr. Dunham was taken from a survey of ten oil and gas operators in New Mexico. The original data from the survey was not submitted to the Environment Department or shared with the other parties; it is not part of the record of this proceeding and cannot be evaluated. 3 Tr. 681:11-682:6.

364. In his memorandum, Mr. Dunham relied on a model developed by the Western Energy Alliance. The Western Energy Alliance is a trade association representing the oil and natural gas industry. The Western Energy Alliance model is not part of the record of this proceeding. 3 Tr. 701:10-702:4.

355. The analyses in Mr. Dunham's memorandum are not sufficiently documented. Mr. Dunham does not provide underlying data, assumptions, spreadsheets, model codes, or other information to support his memorandum report, other than the base assertions in his ten-page report. NMED Reb. Ex. 19 at 1 [Day & Palmer Reb. Test.]; 3 Tr. 756:19-23; *see also, e.g.,* NMED Reb. Ex. 19 at 3, 6, 7, 8-9, 10, 12, 13, 16 [Day & Palmer Reb. Test.]; 3 Tr. 760:21-24; 761:3-11; 767:12-18; 767:22-768:1; 769:25-770:3; 770:20-23; 770:24-771:3.

356. Mr. Dunham was not a credible witness. *See* Findings 325-355.

357. Neither Mr. Dunham's memorandum nor his testimony should be given any weight.

## XIII. THERE IS INSUFFICIENT EVIDENCE TO SUPPORT A GENERAL EXEMPTION FOR LOW-PRODUCING OR LOW EMITTING WELLS

358. The Environment Department proposes a narrow exemption exempting "small business facilities" from certain, but not all, requirements of the 20.2.50 NMAC. *See* NMED Reb. Ex. 23 at 20.2.50.7.VV, -111.B, C, & -125 NMAC [NMED's Sept. 16, 2021 Proposed 20.2.50 NMAC].

359. Under the Environment Department's proposal, a "small business facility" is a source that is independently owned and is not a subsidiary of another company, has 10 or fewer employees, and has a gross annual revenue less than $250,000. *Id.* at 20.2.50.7.VV NMAC.

360. The Environment Department supported the small business facility exemption with detailed analysis from Susan Day, an economist with ERG, and Liz Bisbey-Kuehn, Environment Department Air Quality Bureau Chief, on the numbers of oil and gas companies that meet each of the three criteria in the definition and the Environment Department's rationale for selecting the criteria. Ms. Bisbey-Kuehn also emphasized the applicability of different sections of the rule are based on emissions thresholds in recognition of the potential economic difficulty of compliance for low-producing operations. *See generally* 3 Tr. 870:9-885:18 [Day and Bisbey-Kuehn Test.].

361. In its direct and rebuttal notices of intent and at hearing, NMOGA took the position that the small business facility exemption should be deleted because NMOGA could not identify an operator that met the criteria. *See* NMOGA App. B at 7; NMOGA Ex. 47 at 7; 4 Tr. 991:18-19.

362. While NMOGA's witness Mr. Smitherman provided a lot of testimony on the hardships of compliance to smaller operations, he acknowledged during cross-examination that:

- NMOGA's proposal is to strike the small business facility exemption,
- NMOGA did not supply any data, analysis, or economic information that would support a general exemption for low-producing wells, but had focused on applicability thresholds for different sections of the rule, and
- NMOGA was not proposing any additional exemptions for small businesses, but was willing to engage in future discussions with the Environment Department and other parties about such an exemption.

4 Tr. 996:14-997:15.

363. The Independent Petroleum Association of New Mexico ("IAPNM") did not put forth in their proposed amendments to 20.2.50 NMAC any written proposal in their direct or rebuttal testimony or during hearing to delete or revise the definition of "small business facility" or otherwise propose an exemption based on low production or lower emissions. *See* IAPNM Ex. 1 [Proposed Modifications]; IAPNM Notice of Intent to Present Rebuttal Technical Testimony; 3 Tr. 931:13-22.

364. While IAPNM did not put forth a written proposal, it made a general recommendation not to adopt the Environment Department's proposed "small business facility" exemption but instead to return to the Environment Department's pre-petition draft that proposed exemptions for stripper wells and lower potential to emit facilities. IAPNM Ex. 10 at 28-29; 3 Tr. 905:7-15. Mr. Ryan never identified the threshold IAPNM would recommend for lower emitting operations.

365. Under the EIB's rulemaking rules, all parties must "include the text of any recommended modifications to the proposed regulatory change" in their notices of intent to present technical testimony. 20.1.1.302.A(5) NMAC.

366. IAPNM witness Ryan Davis acknowledged during cross-examination he was aware of this requirement. 3 Tr. 930:21-931:6.

367. Not only did Mr. Davis acknowledge during cross-examination that IAPNM had not put forth any written proposal for a stripper well, low emitting, or any other exemption, 3 Tr. 930:10-20, he acknowledged there are potential to emit thresholds throughout the rule that give relief to lower emitting facilities. 3 Tr. 929:5-10.

368. Mr. Davis further acknowledged that IAPNM had not provided any analysis, data, or financial analysis for any exemption for stripper wells or lower producing wells. 3 Tr. 932:3-24. IAPNM provided no analysis for any small business exemption estimating increased emissions or reduced costs as a result of any general exemption.

369. While Mr. Davis referred to the state's definition of "small business" that applies to 50 or few employees as a potential exemption, he acknowledged during cross-examination that IAPNM had not put forth any language for such a proposal or provided any economic analysis in support of such an exemption. 3 Tr. 931:13-22.

370. Ms. Hull conducted a review of emissions from stripper wells in New Mexico, and determined that "stripper wells are responsible for a disproportionately large portion of emissions, over 22% compared to their low share of production . . . ." 8 Tr. 2612:20-25. According to Ms. Hull, this information underscores "the need for frequent instrument-based inspections at these well sites to identify abnormal operating conditions that result in excess venting or leaking." 8 Tr. 2613:1-4.

371. Ms. Hull also conducted a review to determine ownership of stripper wells in New Mexico. This review demonstrates that "companies who operator stripper wells also operate many higher-producing wells." 8 Tr. 2612:12-14. Specifically, companies that own stripper

wells are responsible for 99.6% of oil production and 97% of gas production in the state. 8 Tr. 2611:25-2612:3.

372. Mr. Alexander, a former oil and gas executive, pointed out that an asset portfolio consisting solely of stripper wells can still produce significant amounts of oil and gas and generate considerable income. 10 Tr. 3237:12-25. He further noted that companies that operate multiple stripper wells located close together will often view the combined assets as one entity when evaluating potential compliance costs and mitigation efforts. 10 Tr. 3238:9-14.

373. Ms. Hull's analysis directly rebuts Mr. Davis' and Mr. Smitherman's testimony on the alleged economic hardship of the Environment Department's proposed rules on small operators because Ms. Hull's analysis demonstrates that companies that operate low-producing stripper wells also operate high producing assets.

## XIV. OZONE MODELING

### A. Ozone Pollution Endangers Human Health

374. Ground-level ozone is a dangerous air pollutant and is regulated as one of six “criteria air pollutants” under National Ambient Air Quality Standards. EDF Ex. TT at 4; 8 Tr. 2718:21-22.

375. Exposure to elevated concentrations of ozone lead to serious, adverse health effects, including asthma, increased emergency room visits, and premature death. These impacts are particularly severe in sensitive populations, including children and the elderly. EDF Ex. TT at 4; 8 Tr. 2720:1-5.

376. Ozone also causes direct harm to the environment by impeding plant growth and vitality and decreasing crop yield. EDF Ex. TT at 4; 8 Tr. 2720:6-8.

377. According to the Environment Department, air quality in multiple counties in

New Mexico is dangerously close to being out of compliance with the federal health-based standards for ozone. Much more must be done to protect healthy air and to protect against air quality degradation in New Mexico. EDF Ex. TT at 4; 8 Tr. 2720:9-14.

### B. VOC and NOx Emission Reductions Are Needed to Reduce Ozone Pollution in New Mexico

378. VOCs contribute to ground-level ozone. EDF Ex. TT at 4.

379. According to Dr. Thompson, reductions in VOC emissions are necessary to ensure the state remains in ozone nonattainment. EDF Ex. BBB at 2-3. Modeling done by the Environment Department demonstrates that ozone reductions from VOC emissions reductions are most likely to occur at the locations of the highest ozone concentrations. EDF Ex. BBB at 3-4.

380. NMOGA claims that regulating VOCs in NOx-limited areas would be “counterproductive,” NMOGA App. A1 at 4-5, and IPANM claims that in NOx-limited areas, ozone formation can only be “controlled by reducing NOx emissions, not VOCs,” IPANM Ex. 2 at 4.

381. Dr. Thompson disagrees with IAPNM and NMOGA’s assertions that, for areas deemed NOx-limited, reducing VOC emissions will not reduce formation of ground-level ozone because the Environment Department’s modeling shows higher VOC sensitivity in locations of higher ozone concentrations and consistently demonstrates a large contribution from oil and gas operations to high ozone levels. EDF Ex. BBB at 2-3; 4 Tr. 1037:18-1038:21.

### C. Oil and Gas VOCs and NOx Emissions Contribute to Ozone Pollution in New Mexico

382. The Environment Department’s ozone modeling shows that oil and gas operations within New Mexico are the largest in-state contributor by sector to a number of high ozone days

at monitors in danger of being designated nonattainment. EDF Ex. BBB at 2-3; NMOGA and IPANM's assertion that oil and gas sources do not contribute significantly to ambient ozone concentrations is incorrect and is not supported by the Environment Department's modeling. EDF Ex. BBB at 4; 4 Tr. 1037:24-1038:12.

383. The Environment Department's modeled source apportionment shows that emissions from oil and gas sources in New Mexico consistently contribute more than 1 part per billion to ozone monitors and, in many cases, comprise the largest in-state contribution by economic sector to ozone concentrations on high ozone days. NMED Ex. 17 at 112-27, 143-51. Indeed, the monitors in the Northwest portion of the state show the largest contribution from oil and gas sources and the highest sensitivity to VOCs. EDF Ex. BBB at 4. This finding strongly points towards the need for controls of both VOCs and NOx from oil and gas sources in New Mexico. EDF Ex. BBB at 4; 4 Tr. 1038:24-1039:10.

### D. Additional VOC and NOx Emission Reductions Beyond What the Model Estimates Are Likely Necessary to Combat Ozone Pollution Because the Model Fails to Account for the Exacerbating Effects of Climate Change on Ozone Formation

384. NMED's model likely underestimates future ozone concentrations because it fails to consider our changing climate. EDF Ex. BBB at 5; 4 Tr. 1038:13-15.

385. Studies have consistently predicted that as the climate changes and gets warmer and increasingly sunny and stagnant, ozone production will likely increase through several primary and secondary pathways. EDF Ex. BBB at 5. This results in the need for larger reductions of ozone precursors to achieve the same ozone reduction numbers that the model is showing. EDF Ex. BBB at 5. Our warming climate necessitates adoption of strong rules to reduce VOCs and methane, as NMED and the Parties have proposed. EDF Ex. BBB at 5; 4 Tr. 1038:15-21.

## PROPOSED CONCLUSIONS OF LAW

### I. THE EIB'S STATUTORY AUTHORITY IS BROAD, AND INCLUDES CONSIDERATION OF PUBLIC HEALTH AND THE ENVIRONMENT

1. The EIB "is responsible for environmental management and consumer protection," and "in that respect, shall promulgate rules and standards" for "air quality management as provided in the Air Quality Control Act." NMSA 1978, § 74-1-8.A, 8(A)(4).

2. The EIB "shall prevent or abate air pollution." NMSA 1978, § 74-2-5.A.

3. The EIB "shall … adopt, promulgate, publish, amend and repeal rules and standards consistent with the Air Quality Control Act to attain and maintain national ambient air quality standards and prevent or abate air pollution, including … rules prescribing air standards within the geographic area of the [EIB's] jurisdiction … or any part thereof." NMSA 1978, § 74-2-5.B.

4. Where the EIB determines that "emissions from sources within the [Board's] jurisdiction cause or contribute to ozone concentrations in excess of 95% of the primary national ambient air quality standard for ozone promulgated pursuant to the federal act," the [Board] must adopt a plan and rules "to control emissions of oxides of nitrogen and volatile organic compounds to provide for attainment and maintenance of the standard." NMSA 1978, § 74-2-5.C.

5. In determining what rules to promulgate "to control emissions of oxides of nitrogen and volatile organic compounds to provide for attainment and maintenance of the standard" the EIB must "give weight it deems appropriate to all facts and circumstances, including: (1) character and degree of injury to or interference with health, welfare, visibility and property; (2) the public interest, including the social and economic value of the sources and

subjects of air contaminants; and (3) technical practicability and economic reasonableness of reducing or eliminating air contaminants from the sources involved and previous experience with equipment and methods available to control the air contaminants involved." NMSA 1978, § 74-2-5.F.

6. In promulgating regulations, the EIB has statutory authority to consider the co-benefits of reducing ozone precursors, which include reducing methane, a potent greenhouse gas, and reducing air pollutants that harm human health, including volatile organic compounds and hazardous air pollutants. NMSA 1978, § 74-2-5.F(1), (2).

7. The EIB must give the words "character and degree of injury to or interference with health, welfare," and "the public interest" their ordinary, broad meaning, because the legislature did not indicate a different intent. *See Sw. Org. Project v. Albuquerque-Bernalillo Cnty. Air Quality Control Bd.*, 2021-NMCA-005, ¶ 11 (citing *High Ridge Hinkle Joint Venture v. City of Albuquerque*, 1998-NMSC-050, ¶ 5); *see also* NMSA 1978, § 74-2-2 (definitions section for Air Quality Control Act without any definition for terms "health," "welfare," and "the public interest.").

8. Like the Solid Waste Act, the Air Quality Control Act is "replete with references to public input,'" *Sw. Org. Project*, 2021-NMCA-005, ¶ 20, including in statutory provisions governing rulemaking and in attendant regulations, NMSA 1978, § 74-2-6 (requiring a public hearing where "interested persons may present their views," including through submission of data, written comments, and examination of witnesses); 20.1.1.301-304 NMAC (providing for broad public participation in hearings).

9. The Air Quality Control Act's rulemaking provisions at NMSA 1978, § 74-2-5.F establish a nexus between rulemaking to control air pollution and comments on issues related to

"public health," "welfare," and "the public interest." *C.f. Sw. Org. Project*, 2021-NMCA-005, ¶ 24 (holding that "that specific guidance requiring consideration of quality of life impacts is conspicuously absent from Air Quality Control Act's] **permitting provisions**) (emphasis added); *compare* NMSA 1978, § 74-2-7 (Air Quality Control Act permitting provisions, which do not explicitly require consideration of "public health," "welfare," and "the public interest") *with* NMSA 1978, § 74-2-5.F (Air Quality Control Act provisions specific to **rulemaking** requiring consideration of "public health," "welfare," and "the public interest.").

10. Because the Air Quality Control Act's rulemaking provisions are "replete with references to public input" and have a nexus to issues of "public health," "welfare," and "the public interest," the EIB must give consideration to public input that has a nexus with the relevant provisions of the act in question and their attendant regulations. *In re Application of Rhino Envtl. Servs*., 2005-NMSC-024, ¶¶ 21-24, 29 (holding that because public participation is central to Solid Waste Act and landfill permitting regulations, Secretary must consider issues raise by public relating broadly to public health and welfare); *Sw. Org. Project*, 2021-NMCA-005, ¶ 18.

11. A court will review an agency's administrative action "in the context of the regulatory setting designed by the Legislature," by looking to the purpose and substantive provisions of the Act. *In re Application of Rhino Envtl. Servs.*, 2005-NMSC-024, ¶ 14 (reviewing purpose and key provisions of Solid Waste Act).

12. The "legislative mandate" of the Air Quality Control Act is "expressed in simple and direct language: The board shall prevent or abate air pollution." *Pub. Serv. Co. of N.M. v. N.M. Envtl. Improvement Bd.*, 1976-NMCA-039, ¶ 7.

13. The EIB's regulatory actions shall only be set aside by the Court of Appeals if the

action is found to be: (1) arbitrary, capricious or an abuse of discretion; (2) not supported by substantial evidence in the record; (3) or otherwise not in accordance with law. NMSA 1978, § 74-2-9.C.

### A. <u>The EIB Must Consider Disparate Impacts of Its Rules</u>

14. Rational rulemaking requires that the EIB follow its "internal procedural rules" that affect the rights of individuals that apply to the rulemaking. *See Morton v. Ruiz*, 415 U.S. 199 (1974) (overturning administrative action by agency as arbitrary under the federal Administrative Procedure Act because it was inconsistent with internal procedures); *see also* NMSA 1978, § 74-2-9.C (holding Board action will be invalidated if arbitrary).

15. The EIB is therefore required by Executive Order 2005-056: Environmental Justice Executive Order "to provide meaningful opportunities for involvement to all people regardless of race, color, ethnicity, religion, income, or education level" and to "utilize available environmental and public health data to address impacts in low-income communities and communities of color…." in its rulemakings to the extent authorized by statute. Exec. Order 2005-056 at 1-2.

16. The Air Quality Control Act's requirement that the EIB "give weight it deems appropriate" to the "character and degree of injury to or interference with health, welfare" and "the public interest" not only authorizes but requires the EIB to give weight to how proposed rules address or exacerbate "the character and degree" of "[health] impacts in low-income communities and communities of color" when such factors are raised by the public. *In re Application of Rhino Envtl. Servs.*, 2005-NMSC-024, ¶ 14 (holding that administrative adjudicator must "consider whether evidence of the harmful effects from the cumulative impact of [pollution]" in a low-income, minority community "rises to the level of a public nuisance or

potential hazard to public health, welfare or the environment." ); *see Friends of Buckingham v. State Air Pollution Control Bd.*, 947 F.3d 68, 87 (4th Cir. 2020) (noting that all parties agreed that Virginia law requirement that air quality board consider "character and degree of injury to ... health" and other factors required board to "consider the potential for disproportionate impacts to minority and low income communities.").

### B. The EIB'S Decisions Must Be Supported by Substantial Evidence Based on The Whole Record

17. Under the Air Quality Control Act, any rule adopted by the EIB must be supported by "substantial evidence." NMSA 1978, § 74-2-9.C(2).

18. Courts conduct a "whole record" review to determine whether substantial evidence supports an agency's decision. *Duke City Lumber Co. v. N.M. Envtl. Improvement Bd.*, 1984-NMSC-042, ¶¶ 13, 14**.**

19. "To conclude that an administrative decision is supported by substantial evidence in the whole record, the court must be satisfied that the evidence demonstrates the reasonableness of the decision. No part of the evidence may be exclusively relied upon if it would be unreasonable to do so. The reviewing court needs to find evidence that is credible in light of the whole record and that is sufficient for a reasonable mind to accept as adequate to support the conclusion reached by the agency." Nat'l Council on Comp. Ins. v. N.M. State Corp. Comm'n, 1988-NMSC-036, ¶ 8.

## II. SUBSTANTIAL EVIDENCE SUPPORTS THE COMMUNITY AND ENVIRONMENTAL PARTIES AND NATIONAL PARK SERVICE'S PROPOSAL AT 20.2.50.113 NMAC TO REDUCE NOX EMISSIONS FROM ENGINES

### A. The Proposals Will Reduce NOx Emissions

20. Engines and turbines are by far the largest source of NOx emissions from the oil-

and-gas industry. *See* 9 Tr. 2974:19–20 [Orozco Test.]; NMOGA Statement of Intent to Present Technical Testimony at 97 [Valor EPC Study: NMAC 20.2.50.113, Engines and Turbines].

21. A variety of NOx control options exist for new and existing engines, including combustion modifications and post-combustion controls. 6 Tr. 1673:2–15 [Bisbey-Kuehn Test.].

22. Ozone formation in New Mexico is often NOx limited. Accordingly, reducing NOx from engines and turbines is an important strategy for reducing ozone levels in New Mexico. 9 Tr. 2974:21–23.

23. The proposals will reduce NOx emissions by (1) ensuring that existing 4SLB engines are subject to a stricter limit on NOx emissions and (2) requiring operators to meet the most stringent emission standards for NOx for all engines installed at new facilities.

**B. <u>The Proposed Standards for Existing 4SLBs is Achievable and Cost Effective</u>**

24. In 2020, the Colorado Air Pollution Control Division adopted a standard of **1.2 grams of NOx per horsepower hour**, applicable to all existing 4SLBs. 9 Tr. 2976:10–14; *see* 5 Colo. Code Regs. § 1001-9-E-I (Table 2). This is the standard the Community and Environmental Parties propose for existing 4SLBs with a rated horsepower between 1,000 and 1,775.

25. The Colorado Air Pollution Control Division found a standard of **1.2 grams of NOx per horsepower hour**, which is proposed by the Community and Environmental Parties and the National Park Service, to be cost effective and achievable for all existing 4SLBs. 9 Tr. 2976:12–14.

26. Any lean-burn engine built after 2010 must comply with a standard of 1.0 grams of NOx per horsepower hour standard under federal law, 40 C.F.R. § 60.4230, subpart JJJJ.

27. No party presented evidence why New Mexico operators could not achieve a limit

of 1.2 grams of NOx per horsepower hour at existing 4SLBs with a rated horsepower between 1,000 and 1,775. 9 Tr. 2978:10–13.

28. If a particular engine cannot comply with the proposed standard at reasonable cost, an operator can take advantage of an alternative compliance options. For example, an operator can reduce the annual hours of operation, average emissions across the operator's entire fleet of engines, and seek exemptions for particular engines that cannot meet the standard in a cost effective manner. 9 Tr. 2979:7–15; 6 Tr. 1679:11–1682:5.

### C. There Is No Evidence Supporting the Environment Department's Deletion of Language Applying More Stringent Standards to Newly "Installed" Engines

29. The regulations the Environment Department proposed as part of its Petition would have treated newly "installed" engines as new sources subject to the most stringent emission limits. The rebuttal version deleted this proposal. *See* NMED Reb. Ex. 23 at 9 [redline showing changes to Section 113 adopted between Petition/direct NOI and rebuttal NOI].

30. The Environment Department did not provide an explanation why it deleted this proposal. *See* NMED Reb. Ex. 1 at 28 (noting this change was proposed by NMOGA and Kinder Morgan and stating "NMED agrees to delete the term 'installed.'").

31. Colorado applies more stringent new source controls to engines that are "placed in service, modified, **or relocated**" after the effective date of its engines rule. 5 Colo. Code Regs. § 1001-9-E-I (Table 2) (emphasis added).

32. If operators can install old engines at new facilities in New Mexico without complying with new engine standards, there is a risk that New Mexico may become a dumping ground for old, high-pollution equipment that is no longer allowed in other states. 9 Tr. 2976:1–7.

### D. Substantial Evidence Supports the Community and Environmental Parties and National Park Service's Proposal

33. Based on the foregoing, substantive evidence in the record supports the Community and Environmental Parties' and the National Park Service's proposed modifications to 20.2.50.113 NMAC.

## III. SUBSTANTIAL EVIDENCE SUPPORTS THE COMMUNITY AND ENVIRONMENTAL PARTIES, ENVIRONMENT DEPARTMENT, AND OXY'S PROPOSAL AT 20.2.50.116 NMAC TO INCREASE LDAR INSPECTIONS TO PROTECT PERSONS IN CLOSE PROXIMITY TO OIL AND GAS WELLS

### A. There Is Substantial Evidence that the Proximity Proposal Will Reduce VOCs and Help New Mexico Stay in Attainment for Ozone

34. The proximity proposal will reduce volatile organic compounds that contribute to ozone pollution, thereby helping New Mexico protect clean air and remain in attainment with the National Ambient Air Quality Standards for Ozone. EDF Ex. TT at 3. EDF estimates that the proximity proposal will impact 3,365 or 7.7% of the sites in the state, will reduce VOC emissions by 3,600 tons per year, and will increase VOC emissions reductions at those sites by 73%. 8 Tr. 2598:4-10. This resulting reduction in VOCs will help New Mexico reduce local formation of ozone and help New Mexico stay in attainment of the National Ambient Air Quality Standards for ozone. 8 Tr. 2718:6-22, 2595:19-20.

### B. There Is Substantial Evidence the Proximity Proposal Will Result in the Co-benefits of Reducing Methane and HAPs Emissions

35. The proximity proposal will secure important co-benefits by reducing 14,300 tons of methane and 150 tons of hazardous air pollutant annually. 8 Tr. 2593:21-23; EDF Ex. SS at 11.

### C. There Is Substantial Evidence that the Proximity Proposal Will Protect People Within 1,000 Feet of Well Sites

36. There is a reasonable degree of scientific certainty that living in close proximity

to oil and gas facilities results in increased health risks and impacts from elevated air pollution levels and that these health risks are increasingly attenuated further from these operations. CAA Ex. 25 at 2, 11.

37. The public health risks and impacts associated with air pollutant emissions from oil and gas facilities that go unaddressed would be disproportionately experienced by people who live, work and go to school near oil and gas facilities. CAA Ex. At 2, 11.

38. The body of epidemiological literature strongly supports that geographic proximity to active oil and gas development is an important risk factor for a variety of adverse health outcomes, including: respiratory outcomes, cardiovascular outcomes and cardiovascular disease indicators, childhood cancer, hospitalizations, and adverse birth outcomes. CCA Ex. 25 at 1, 14-15.

39. The scientific literature points to the need for frequent if not continuous leak detection using modern and advanced leak detection methods capable of identifying leaks. EDF Ex. RR at 8.

40. Emission reductions strategies should focus on sites in close proximity to human populations. CAA Ex. 25 at 3.

41. The proximity proposal will impact 3,365 or 7.7% of the well sites in the state. The proposal will increase VOC reductions by 3,600 tons of VOC annually within the proposed 1,000 feet boundary. EDF Ex. SS at 11; 8 Tr. 2598:4-10.

### D. <u>**There Is Substantial Evidence in the Record that Substantial Numbers of Persons of Persons of Color and Vulnerable Populations in New Mexico Live in Close Proximity to Well Sites**</u>

42. EDF estimated that over 35,000 New Mexicans live within 1,000 feet of a well site. Of those, over 2,700 are children under the age of 5, more than 4,500 are adults 65 years or

older, more than 5,700 are living in poverty, and 19,000 are people of color, including over 5,800 Native Americans. EDF Ex. SS at 15; 8 Tr. 2593:23-2594:2, -2596:18-22.

43. Those living in close proximity to these well sites have health conditions that could be exacerbated by additional air pollution. These include more than 3,800 adults with asthma, over 2,200 adults with coronary heart disease, almost 2,600 with chronic obstructive pulmonary disease, and more than 1,200 adults who have experienced or are at risk of a stroke. Ex. DD. EDF Ex. SS at 15; 8 Tr. 2596:23-2597:4.

### E. There Is Substantial Evidence that the Proximity Proposal Is Cost Effective and There Is No Evidence to the Contrary

44. The proposal represents an incremental increase in LDAR costs of $4.8 million or 13% higher) from the Environment Department's initial proposal, and results in a cost of $894 per ton of VOC reduced within the proximity boundary. EDF Ex. SS at 11.

45. The estimated cost of the proposal of $894 per ton of VOC reduced within the 1,000-foot boundary is lower than quarterly and monthly cost estimates from other jurisdictions that adopted similar LDAR inspection frequencies. EDF Ex. SS at 13; 8 Tr. 2598:19-2600:8.

46. No industry party presented a cost-benefit analysis for the Community and Environmental Parties and Oxy's proximity proposal or rebutted EDF's cost-benefit calculations.

47. There is substantial evidence that the proximity proposal is cost effective and no evidence that the proposal is not cost effective. EDF Ex. SS at 11-14. Substantial Evidence in the Record Supports the Proximity Proposal

48. Based on the foregoing, substantial evidence in the record supports the Community and Environmental Parties, Environment Department, and Oxy's proximity proposal set forth at 20.2.50.116 NMAC. *See* Community and Environmental Parties' Ex. 1 at 19.

## IV. SUBSTANTIAL EVIDENCE SUPPORTS THE COMMUNITY AND

## ENVIRONMENTAL PARTIES PROPOSAL AT 20.2.50.122 NMAC TO ACCELERATE THE SCHEDULE TO REPLACE EMITTING PNEUMATIC CONTROLLERS

### A. Substantial Evidence Supports the Proposal to Accelerate the Phase Out of Polluting Pneumatic Controllers

49. The Environment Department proposes to require operators to phase out their use of polluting pneumatic controllers by 2029.

50. In 2020, Colorado adopted a pneumatics retrofit rule, with industry support, that would require operators to replace polluting pneumatic devices pursuant to a schedule that is much more aggressive than the schedule proposed by the Environment Department.

51. The Community and Environmental Parties propose a schedule that is less stringent than the schedule that is currently in effect in Colorado, but more stringent than the one proposed by the Environment Department.

52. Oxy supports accelerating the transition to zero-emitting devices, and proposes modifications to the rule that would accelerate this transition. *See* Oxy Reb. Ex. 1 at 25-26.

53. Substantial evidence indicates that the Community and Environmental Parties' proposal is cost effective and technically feasible. Under the Parties' proposal, the required pace of retrofits under the program would still be very reasonable and similar to that required in Colorado. This accelerated schedule would therefore not increase overall costs in any significant way; at most, it would require owners and operators to incur some of these costs sooner than they otherwise might (while also increasing cumulative environmental benefits and ensuring that these benefits accrue sooner). CAA Ex. 3 at 25.

54. No party submitted analysis indicating that the total cost of the retrofit program increases if retrofits occur in earlier years.

55. Substantial evidence indicates that a more rapid phase out will prevent thousands

of tons of VOC pollution from entering the atmosphere, and tens of thousands of tons of methane pollution.

56. Substantial evidence indicates that it is simpler, easier, and less expensive to convert sites with electricity to non-emitting controllers.

57. Precedent exists for requiring larger facilities with access to electric power (such as gas processing facilities and transmission compressor stations) to convert to zero-emission controllers with six months.

58. Substantial evidence supports Community and Environmental Parties' proposal to require operators to achieve a fixed increase in the **percentage** of non-emitting controllers, rather than reaching a fixed end point.

59. Substantial evidence does not support the Environment Department's proposal to exempt operators from a requirement to perform further retrofits if 75% of their controllers are non-emitting by January 2025.

60. Substantial evidence does not support NMOGA's proposal to exempt to stripper well operators, such as Hillcorp Energy Co., from the pneumatics retrofit program.

### B. <u>Substantial Evidence Supports the Proposal to Require LDAR for Pneumatic Devices</u>

61. Since 2018, Colorado has required operators to perform LDAR on polluting pneumatics in the Denver Metro/North Front Range Ozone Nonattainment Area. This requirement was extended to the rest of the state in 2020. CAA Ex. 23 at 3.

435. Based on this Colorado precedent, the Community and Environmental Parties have proposed a provision at 20.2.50.122.C(6) NMAC to require operators to include polluting pneumatic devices in their LDAR program.

62. Substantial evidence indicates that pneumatic devices frequently malfunction and

emit more than they are designed to emit.

63. Performing LDAR can reduce emissions that occur as a result of malfunctions.

64. The Environment Department has incorporated this proposal into its most recent proposal. *See* NMED Jan. 18, 2022 Version of Proposed 20.2.50 NMAC at 28-29.

65. NMOGA and Oxy have also indicated that they support this proposal.

66. Substantial evidence supports the Community and Environmental Parties' proposal.

## V. SUBSTANTIAL EVIDENCE SUPPORTS THE COMMUNITY AND ENVIRONMENTAL PARTIES AND OXY'S Proposal AT 20.2.50.123 NMAC TO REDUCE EMISSIONS FROM STORAGE VESSELS

67. The Community and Environmental Parties and Oxy propose adding a subsection to 20.2.50.123 NMAC or "Section 123" to require the use of storage vessel measurement systems for storage vessels at new and modified facilities. Community and Environmental Parties' Ex. 1 at 28.

68. The proposal would reduce emissions by requiring operators to employ a measurement system that eliminates the need to open the thief hatch when conducting routine measurements of the quantity and quality of the liquid. CAA Ex. 3 at 27.

69. This proposal mirrors almost word for word an amendment to Regulation 7 adopted by the Colorado Air Quality Control Commission in December 2019. CAA Ex. 3 at 27 (citing 5 Colo. Code Regs. § 1001-9:D.II.C.4).

70. The proposal is cost effective. *See* CAA Ex. 3 at 28 (noting that the Colorado Air Pollution Control Division analyzed the costs of its storage vessel measurement system requirement, and found that costs ranged from $3,447 per ton of VOC to $944 per ton, depending on how often loadout occurred).

71. The proposal will have important safety co-benefits, by reducing the risk that workers opening a thief hatch will be injured or killed due to the inhalation of tank vapors.

72. The Environment Department adopted the Community and Environmental Parties' proposal in large part. However, there are two important differences that render the Environment Department's proposal less protective than the Community and Environmental Parties and Oxy's proposal. First, the Environment Department's proposal only requires use of a storage tank measurement system capable of measuring the **quantity** of liquid, but would not require a system to measure the **quality** of liquids. Second, the Environment Department's proposal would allow operators to open a thief hatch "as necessary for custody transfer."

73. The weight of the evidence supports requiring operators to use a storage vessel management system to measure **quality** (i.e., to conduct samples) of liquid. A variety of alternative systems exist to sample the liquids in the vessel. *See* CAA Ex. 3 at 27 (examples of alternative systems that do not require venting include systems that comply with Chapter 18.2 of American Petroleum Institute Manual of Petroleum Measurement Standards, or by installing a Lease Automatic Custody Transfer unit).

74. No evidence supports the Environment Department's addition of language allowing operators to open a thief hatch "as necessary for custody transfer." This provision is ambiguous and could be used to circumvent the intent of the rule because a purchaser's desire to measure the quantity and quality of the liquid manually could be deemed sufficient reason to open the thief hatch even though it is not technically necessary to open the hatch.

75. Substantial evidence supports adopting the Community and Environmental Parties' proposal in full.

## VI. SUBSTANTIAL EVIDENCE SUPPORTS THE COMMUNITY AND ENVIRONMENTAL PARTIES AND OXY'S COMPLETIONS/RECOMPLETIONS PROPOSAL

### A. There Is Substantial Evidence that the Completions/Recompletions Proposal Is Cost Effective and There Is No Evidence to the Contrary

76. Relying on CDPHE's cost-benefit analysis, EDF witness Ms. Hull, an environmental engineer, calculated the cost for the Community and Environmental Parties' completions/recompletions proposal at 20.2.50.127 NMAC would be **$259.48 per ton of VOC reduced**, using New Mexico's average of methane-to-VOC ratio and New Mexico-specific completions data. EDF Ex. SS at 15; EDF Ex. UU at 14; 10 Tr. 3283:1-10.

77. Both she and Mr. Alexander, who had many years' experience costing out completions, testified this cost is reasonable. EDF Ex. SS at 15; 10 Tr. 3283:1-10; EDF Ex. UU at 13-14; 10 Tr. 3229:14-3230:17.

78. No industry party presented a cost-benefit analysis for the Community and Environmental Parties and Oxy's completions/recompletions proposal or rebutted EDF's cost-benefit calculations.

79. Therefore, there is substantial evidence that the completions/recompletions proposal is cost effective and no evidence that the Community and Environmental Parties' completion/recompletion proposal is not cost effective.

### B. There Is Substantial Evidence that Implementing the Completions/Recompletions Proposal Is Safe and There Is No Relevant Evidence to the Contrary

80. Both Mr. Alexander and Oxy engineer Mr. Holderman have experience managing completions for major oil and gas companies. EDF Ex. UU at 1; EDF Ex. KK at 1-2; Oxy Ex. 3 at 2.

81. Both testified that the Community and Environmental Parties and Oxy's completions/recompletions proposal can be implemented safely.

82. The Community and Environmental Parties and Oxy's proposal removes the "vapor tight" language that is in the CAQCC and COGCC rules upon which their proposal is modeled in order to ensure that flowback vessels have a pressure relief system to accommodate safety issues that could arise from significant changes in pressure or flow rates. EDF Ex. UU at 12; 10 Tr. 3232:16-3233:5; 10 Tr. 3307:1-6.

83. NMOGA witness Mr. Smitherman's testimony that the completions/incompletions proposal raised safety concerns was based on his mischaracterization that the proposal required "vapor tight" flowback vessels. 10 Tr. 3319:25-3320:3321:6.

84. Mr. Smitherman gave no testimony rebutting the completions/recompletions proposal that the Community and Environmental Parties and Oxy actually put forth removing the "vapor tight" language.

85. Therefore, Mr. Smitherman's testimony regarding the safety of the completions/incompletions proposal has no application or relevance to the actual completions/incompletions proposal before the EIB.

### C. <u>Substantial Evidence in the Record Supports the Completions/Recompletions Proposal</u>

86. Based on the foregoing, substantial evidence in the record supports the Community and Environmental Parties' completions/recompletions proposal set forth at 20.2.50.127 NMAC in the Community and Environmental Parties' Exhibit 1 at 35-36.

87. There is not credible evidence in the whole record sufficient for a reasonable mind to support NMOGA's opposition to the Community and Environmental Parties and Oxy's completions/recompletions proposal.

## VII. SUBSTANTIAL EVIDENCE SUPPORTS THE ENVIRONMENT DEPARTMENT'S LDAR PROPOSAL AT 20.2.50.116 NMAC

### A. <u>There is Substantial Evidence that the Environment Department's LDAR Proposal Is Reasonable and Technically Feasible</u>

88. Frequent inspections, using modern leak detection instruments, are necessary to identify leaks such as those commonly found in the Permian Basin. 8 Tr. 2541:1-3, -2546:9-12; EDF Ex. XX at 8

89. Frequent inspections can not only detect and help mitigate leaks and super emitters, they can also help operators optimize their operations. 8 Tr. 2586:6-17, -2587:7-15; 10 Tr. 3224:5-18.

90. The Environment Department's proposed instrument-based inspections are essential to identifying leaks, including large leaks or super-emitters, as sensory-based AVO inspections do not reliably detect leaks. 8 Tr. 2559:8-15, -2575:14-15; 10 Tr. 3223:15-3224:3; 10 Tr. 3225:6-25

91. Frequent inspections with instruments such as optical gas imaging cameras are necessary to mitigate emissions from low-producing wells. 8 Tr. 2540:18-2541:3.

92. In Ms. Hull's opinion, the Environment Department's proposal is cost effective and technically feasible. Moreover, Ms. Hull independently analyzed the compliance costs for the Environment Department's LDAR proposal and found the Environment Department overestimated compliance costs and underestimated emission reductions. Therefore, in Ms. Hull view, the proposal is even more cost effective than the Environment Department estimates. EDF Ex. XX at 6-7; 8 Tr. 2551:6-11.

93. It is critical to have frequent LDAR at gathering stations because they can have anomalous very high emission events. 8 Tr. 2581:7-10.

94. Gathering compressor stations are one of the largest sources of emissions, contributing about 20% of total emissions. 8 Tr. 2546:16-18.

95. Based on Ms. Hull's analysis, the Environment Department's LDAR requirements for well sites and gathering and boosting compressor stations is highly cost effective and will remove 153,000 tons of VOCs from the atmosphere annually.

96. The proposal has the co-benefits of reducing 531,000 tons of methane annually. 8 Tr. 2610:9-14.

### B. NMOGA's Cost Estimates Are Inflated and Its Proposal Would Result in Substantial Pollution

97. EDF examined NMOGA's estimated per well site costs and determined that NMOGA's costs are grossly inflated. EDF Ex. JJJ at 3; 8 Tr. 2606:6-16.

98. NMOGA's proposal increases the emission thresholds triggering each LDAR tier by fivefold compared to the Environment Department's proposal and would result in substantial pollution to the atmosphere that can be cost effectively mitigated. EDF Ex. JJJ at 4; 8 Tr. 2608:6-18.

### C. NMOGA's Proposed Revisions Are Unnecessary and, If Adopted, Would Weaken Emissions Reductions

99. Ms. Hull estimates NMOGA's proposal will result in up to 8,400 additional tons of VOC and up to 34,000 additional tons of methane leaked annually. 8 Tr. 2609:19-25; EDF Ex. JJJ at5.

### D. Substantial Evidence Supports the Environment Department's LDAR Proposal

100. Based on the foregoing, substantial evidence in the record supports New Mexico Environment Department's LDAR Provision set forth at 20.2.50.116 NMAC.

## VIII. SUBSTANTIAL EVIDENCE SUPPORTS THE ENVIRONMENT DEPARTMENT'S LIQUIDS UNLOADING PROPOSAL AT 20.2.50.117 NMAC

### A. There Is Substantial Evidence that the Environment Department's Liquids Unloading Proposal Is Reasonable and Technically Feasible

101. According to Mr. Alexander, the Environment Department's proposed best management practices contained in 20.2.50.117.B(1) NMAC are all effective, cost effective, and technologically practicable methods to reduce emissions during liquids unloading In his experience, these are not only standard industry practice, but have been in the production engineering toolkit for decades. EDF Ex. WW at 2-3; 10 Tr. 3216:25-3218:6, -3220:15-3221:9.

### B. IPANM's and NMOGA's Proposed Revisions are Unnecessary and, If Adopted, Would Reduce the Emissions Reductions

102. In Mr. Alexander's opinion. IPANM's revisions significantly weaken the proposed rule and will result in fewer emissions reductions. EDF Ex. WW at 4.

103. In Mr. Alexander's opinion, NMOGA's revisions significantly weaken the proposed rule and will result in fewer emissions reductions. EDF Ex. WW at 5.

### C. Substantial Evidence Supports the Environment Department's Liquids Unloading Proposal

104. Based on the foregoing, substantial evidence in the record supports the Environment Department's proposal at 20.2.50.117 NMAC to reduce emissions from liquids unloading.

## IX. NMOGA'S COST ANALYSIS SHOULD BE GIVEN NO WEIGHT

105. The memorandum of John Dunham and Associates, and the testimony of John Dunham, are not credible evidence on the economic reasonableness of the proposed rule under NMSA 1978, § 74-2-5.F.3.

105. The EIB deems it appropriate to give the memorandum of John Dunham and Associates, and the testimony of John Dunham, no weight in considering the proposed rule. *See* NMSA 1978, § 74-2-5.F.

## X. THERE IS INSUFFICIENT EVIDENCE TO SUPPORT AN EXEMPTION FOR LOW-PRODUCING OR LOW EMITTING WELLS

107. There is substantial evidence in the record to support the Environment Department's proposal exempting "small business facilities" from certain, but not all, requirements of the 20.2.50 NMAC. *See generally* 3 Tr. 870:9-885:18.

108. IAPNM recommends that the EIB not adopt the Environment Department's proposed "small business facility" exemption but recommends instead that the EIB adopt the Environment Department's pre-petition draft that proposed exemptions for stripper wells and lower potential to emit facilities. IAPNM Ex. 10 at 28-29.

109. IAPNM, however, did not put forth any language in support of its proposal. IAPNM Ex. 1 [Proposed Modifications]; IAPNM Notice of Intent to Present Rebuttal Technical Testimony; 3 Tr. 931:13-22.

110. IAPNM failed to comply with this requirement.

111. Furthermore, under the Air Quality Control Act, all interested persons have a reasonable opportunity to examine witnesses testifying at the rulemaking hearing. NMSA §, 74-2-6.D.

112. IAPNM's failure to put forth language in support of its proposal deprived the other parties of the opportunity to cross-examine an IAPNM witness on any such proposed language.

113. IAPNM failed to supply any data, analysis, financial or economic analysis in support of its recommendation that the EIB adopt stripper well and low PTE exemptions. 3 Tr. 930:10-20.

114. There is not credible evidence in the whole record sufficient for a reasonable mind to support IAPNM's recommended exemptions.

## XI. SUBSTANTIAL EVIDENCE SUPPORTS THE ENVIRONMENT DEPARTMENT'S OZONE MODELING AND CONCLUSIONS

### A. <u>There Is Substantial Evidence that Both VOC and NOx Reductions Are Necessary to Combat Ozone Pollution in New Mexico and Ensure the State Remains in Ozone Attainment</u>

115. Dr. Thompson testified that the Environment Department's model clearly shows that reducing VOC emissions from oil and gas operations will reduce the formation of ground-level ozone. EDF Ex. BBB at 2-3; 4 Tr. 1037:18-1038:21.

116. Dr. Thompson testified that the Environment Department's modeling shows reducing VOC and NOx emissions from oil and gas operations will result in significant and important ozone reductions in the State of New Mexico. 4 Tr. 1062:7-12.

117. EIB must reject NMOGA and IPANM claims that regulating VOCs in NOx-limited areas would be counterproductive because Environment Department's modeling shows higher VOC sensitivity in locations of higher ozone concentrations and consistently demonstrates a large contribution from oil and gas operations to high ozone levels. EDF Ex. BBB at 2-3; 4 Tr. 1037:18-1038:21.

### B. <u>There Is Substantial Evidence that Oil and Gas Emissions Contribute to Elevated Levels of Ozone in New Mexico</u>

118. The Environment Department's ozone modeling shows that oil and gas operations within New Mexico are the largest in-state contributor by sector to a high ozone days at monitors

in danger of being designated nonattainment. NMOGA's and IPANM's assertion that oil and gas sources do not contribute significantly to ambient ozone concentrations is incorrect and is refuted by the Environment Department's modeling. EDF Ex. BBB at 4; 4 Tr. 1037:24-1038:12.

119. The Environment Department's modeled source apportionment shows that emissions from oil and gas sources in New Mexico consistently contribute more than one part per billion to ozone monitors and, in many cases, comprise the largest in-state contribution by economic sector to ozone concentrations on high ozone days. NMED Ex. 17 at 112-27, 143-51.

120. The monitors in the Northwest portion of the state show the largest contribution from oil and gas sources and the highest sensitivity to VOCs. EDF Ex. BBB at 4. This finding strongly points towards the need for controls of both VOCs and NOx from oil and gas sources in New Mexico. EDF Ex. BBB at 4; 4 Tr. 1038:24-1039:10

121. Therefore, there is substantial evidence that the Environment Department's ozone modeling and conclusions are valid.

### C. There Is Substantial Evidence that Because the Model Fails to Account for the Exacerbating Effect of Climate Change, Even Greater VOC and NOx Reductions Are Necessary to Ensure New Mexico Remains in Attainment for Ozone

122. Dr. Thompson testified the Environment Department's model does not take into account a changing climate, *i.e.*, the "climate penalty." EDF Ex. BBB at 5. As the climate changes and gets warmer and increasingly sunny, ozone production will likely increase, all else being equal, resulting in a need for larger reductions to achieve the same ozone reduction numbers in a changing climate. EDF Ex. BBB at 5. Our warming climate necessitates adoption of strong rules to reduce VOCs and methane, as the Environment Department and the Community and Environmental Parties have proposed. EDF Ex. BBB at 5; 4 Tr. 1038:13-21.

123. No industry party rebutted Dr. Thompson's testimony regarding the climate penalty.

Therefore, there is substantial evidence that even greater VOC and NOx reductions than the modeling indicates are likely necessary to ensure New Mexico remains in attainment to meet the National Ambient Air Quality Standards for ozone.

### D. Substantial Evidence in the Record Supports New Mexico Environment Department's Ozone Modeling

124. Based on the foregoing, substantial evidence in the record supports the Community and EParties' conclusions from the ozone modeling.

## Conclusion

For the reasons set forth herein and in the Community and Environmental Parties' Joint Closing Argument, the Community and Environmental Parties' respectfully request the EIB to adopt each of their proposed amendments at 20.2.50.113, -116, -122, -123, and -127 NMAC to the Environment Department's proposed 20.2.50 NMAC.

Respectfully submitted,

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Certificate of Service

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*/s/ Tannis Fox*
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**TITLE 20 ENVIRONMENTAL PROTECTION**
**CHAPTER 2 AIR QUALITY (STATEWIDE)**
**PART 50 OIL AND GAS SECTOR – OZONE PRECURSOR POLLUTANTS**

**20.2.50.1 ISSUING AGENCY:** Environmental Improvement Board.
[20.2.50.1 NMAC – N, XX/XX/2021]

**20.2.50.2 SCOPE:** This Part applies to sources located within areas of the state under the board's jurisdiction that, as of the effective date of this Part or anytime thereafter, are causing or contributing to ambient ozone concentrations that exceed ninety-five percent of the national ambient air quality standard for ozone, as measured by a design value calculated and based on data from one or more department monitors. As of the effective date, sources located in the following counties of the state are subject to this Part: Chaves, Dona Ana, Eddy, Lea, Rio Arriba, Sandoval, San Juan, and Valencia.

**A.** If, at any time after the effective date of this Part, sources in any other area(s) of the state not previously specified are determined to be causing or contributing to ambient ozone concentrations that exceed ninety-five percent of the national ambient air quality standard for ozone, as measured by a design value calculated by the U.S. Environmental Protection Agency based on data from one or more department monitors, the department shall petition the Board to amend this Part to incorporate such areas.

**(1)** The notice of proposed rulemaking shall be published no less than one-hundred and eighty (180) days before sources in the affected areas will become subject to this Part, and shall include, in addition to the requirements of the Board's rulemaking procedures at 20.1.1.301 NMAC:

**(a)** a list of the areas that the department proposed to incorporate into this Part, and the date upon which the sources in those areas will become subject to this Part; and

**(b)** proposed implementation dates, consistent with the time provided in the phased implementation schedules provided for throughout this Part, for sources within the areas subject to the proposed rulemaking to come into compliance with the provisions of this Part.

**(2)** In any rulemaking pursuant to this Section, the Board shall be limited to consideration of only those proposed changes necessary to incorporate other areas of the state into this Part.

**B.** Once a source becomes subject to this Part based upon its potential to emit, all requirements of this Part that apply to the source are irrevocably effective unless the source obtains a federally enforceable limit on the potential to emit that is below the applicability thresholds established in this Part, or the relevant section contains a threshold below which the requirements no longer apply.

[20.2.50.2 NMAC – N, XX/XX/2021]

**20.2.50.3 STATUTORY AUTHORITY:** Environmental Improvement Act, Section 74-1-1 to 74-1-16 NMSA 1978, including specifically Paragraph (4) and (7) of Subsection A of Section 74-1-8 NMSA 1978, and Air Quality Control Act, Sections 74-2-1 to 74-2-22 NMSA 1978, including specifically Subsections A, B, C, D, F, and G of Section 74-2-5 NMSA 1978 (as amended through 2021).
[20.2.50.3 NMAC - N, XX/XX/2021]

**20.2.50.4 DURATION:** Permanent.
[20.2.50.4 NMAC - N, XX/XX/2021]

**20.2.50.5 EFFECTIVE DATE:** Month XX, 2022, except where a later date is specified in another Section.
[20.2.50.5 NMAC - N, XX/XX/2021]

**20.2.50.6 OBJECTIVE:** The objective of this Part is to establish emission standards for volatile organic compounds (VOC) and oxides of nitrogen ($NO_x$) for oil and gas production, processing, compression, and transmission sources.
[20.2.50.6 NMAC - N, XX/XX/2021]

**20.2.50.7 DEFINITIONS:** In addition to the terms defined in 20.2.2 NMAC - Definitions, as used in this Part, the following definitions apply.

**A. "Approved instrument monitoring method"** means an optical gas imaging, United States environmental protection agency (U.S. EPA) reference method 21 (RM 21) (40 CFR 60, Appendix B), or other instrument-based monitoring method or program approved by the department in advance and in accordance with

20.2.50 NMAC.

**B.** **"Auto-igniter"** means a device that automatically attempts to relight the pilot flame of a control device in order to combust VOC emissions, or a device that will automatically attempt to combust the VOC emission stream.

**C.** **"Bleed rate"** means the rate in standard cubic feet per hour at which gas is continuously vented from a pneumatic controller.

**D.** **"Calendar year"** means a year beginning January 1 and ending December 31.

**E.** **"Centrifugal compressor"** means a machine used for raising the pressure of natural gas by drawing in low-pressure natural gas and discharging significantly higher-pressure natural gas by means of a mechanical rotating vane or impeller. A screw, sliding vane, and liquid ring compressor is not a centrifugal compressor.

**F.** **"Closed vent system"** means a system that is designed, operated, and maintained to route the VOC emissions from a source or process to a process stream or control device with no loss of VOC emissions to the atmosphere.

**G.** **"Commencement of operation"** means for an oil and natural gas well site, the date any permanent production equipment is in use and product is consistently flowing to a sales line, gathering line or storage vessel from the first producing well at the stationary source, but no later than the end of well completion operation.

**H.** **"Component"** means a pump seal, flange, pressure relief device (including thief hatch or other opening on a storage vessel), connector or valve that contains or contacts a process stream with hydrocarbons, except for components where process streams consist solely of glycol, amine, produced water, or methanol.

**I.** **"Connector"** means flanged, screwed, or other joined fittings used to connect pipeline segments, tubing, pipe components (such as elbows, reducers, "T's" or valves) to each other; or a pipeline to a piece of equipment; or an instrument to a pipe, tube, or piece of equipment. A common connector is a flange. Joined fittings welded completely around the circumference of the interface are not considered connectors for the purpose of this Part.

**J.** **"Construction"** means fabrication, erection, or installation of a stationary source, including but not limited to temporary installations and portable stationary sources, but does not include relocations or like-kind replacements of existing equipment.

**K.** **"Control device"** means air pollution control equipment or emission reduction technologies that thermally combust, chemically convert, or otherwise destroy or recover air contaminants. Examples of control devices may include but are not limited to open flares, enclosed combustion devices (ECDs), thermal oxidizers (TOs), vapor recovery units (VRUs), fuel cells, condensers, catalytic converters (oxidative, selective, and non-selective), or other emission reduction equipment. A control device may also include any other air pollution control equipment or emission reduction technologies approved by the department to comply with emission standards in this Part. A VRU or other equipment used primarily as process equipment is not considered a control device.

**L.** **"Department"** means the New Mexico environment department.

**M.** **"Design value"** means the 3-year average of the annual fourth-highest daily maximum 8-hour average ozone concentration.

**N.** **"Downtime"** means the period of time when equipment is not in operation.

**O.** "**Drilling**" or "**drilled**" means the process to bore a hole to create a well for oil and/or natural gas production.

**P.** **"Drill-out"** means the process of removing the plugs placed during hydraulic fracturing or refracturing. Drill-out ends after the removal of all stage plugs and the initial wellbore cleanup.

**~~O~~Q.** **"Enclosed combustion device"** means a combustion device where waste gas is combusted in an enclosed chamber solely for the purpose of destruction. This may include, but is not limited to, an enclosed flare or combustor.

**~~P~~R.** **"Existing"** means constructed or reconstructed before the effective date of this Part and has not since been modified or reconstructed.

**S.** **"Flowback"** means the process of allowing fluids and entrained solids to flow from a well following stimulation, either in preparation for a subsequent phase of treatment or in preparation for cleanup and placing the well into production. The term flowback also means the fluids and entrained solids flowing from a well after drilling or hydraulic fracturing or refracturing. Flowback ends when all temporary flowback equipment is removed from service. Flowback does not include drill-out.

**T.** **"Flowback vessel"** means a vessel that contains flowback.

**~~Q~~U.** **"Gathering and boosting station"** means a facility, including all equipment and compressors, located downstream of a well site that collects or moves natural gas prior to the inlet of a natural gas processing plant; or prior to a natural gas transmission pipeline or transmission compressor station if no gas processing is performed; or collects, moves, or stabilizes crude oil or condensate prior to an oil transmission pipeline or other form of transportation. Gathering and boosting stations may include equipment for liquids separation, natural gas dehydration, and tanks for the storage of water and hydrocarbon liquids.

**V.** "**Hydraulic fracturing**" means the process of directing pressurized fluids containing any combination of water, proppant, and any added chemicals to penetrate tight formations, such as shale, coal, and tight sand formations, that subsequently require flowback to expel fracture fluids and solids.

**W.** "**Hydraulic refracturing**" means conducting a subsequent hydraulic fracturing operation at a well that has previously undergone a hydraulic fracturing operation.

**~~R~~X.** **"Glycol dehydrator"** means a device in which a liquid glycol absorbent, including ethylene glycol, diethylene glycol, or triethylene glycol, directly contacts a natural gas stream and absorbs water.

**~~S~~Y.** **"High-Bleed pneumatic controller"** means a continuous bleed pneumatic controller that is designed to have a continuous bleed rate that emits in excess of 6 standard cubic feet per hour (scfh) of natural gas to the atmosphere.

**~~T~~Z.** **"Hydrocarbon liquid"** means any naturally occurring, unrefined petroleum liquid and can include oil, condensate, and intermediate hydrocarbons. Hydrocarbon liquid does not include produced water.

**~~U~~AA.** **"Inactive well site"** means a well site where the well is not being used for beneficial purposes, such as production or monitoring, and is not being drilled, completed, repaired or worked over.

**~~V~~BB.** **"Injection well site"** means a well site where the well is used for the injection of air, gas, water or other fluids into an underground stratum.

**~~W~~CC.** **"Intermittent pneumatic controller"** means a pneumatic controller that is not designed to have a continuous bleed rate but is designed to only release natural gas above de minimis amounts to the atmosphere as part of the actuation cycle.

**~~X~~DD.** **"Liquid unloading"** means the removal of accumulated liquid from the wellbore that reduces or stops natural gas production.

**~~Y~~EE.** **"Liquid transfer"** means the unloading of a hydrocarbon liquid from a storage vessel to a tanker truck or tanker rail car for transport.

**~~Z~~FF.** **"Local distribution company custody transfer station"** means a metering station where the local distribution (LDC) company receives a natural gas supply from an upstream supplier, which may be an interstate transmission pipeline or a local natural gas producer, for delivery to customers through the LDC's intrastate transmission or distribution lines.

**~~AA~~GG.** **"Low-Bleed pneumatic controller"** means a continuous bleed pneumatic controller that is designed to have a continuous bleed rate that emits less than or equal to 6 scfh of natural gas to the atmosphere.

**~~BB~~HH.** **"Natural gas-fired heater"** means an enclosed device using a controlled flame and with a primary purpose to transfer heat directly to a process material or to a heat transfer material for use in a process.

**~~CC~~II.** **"Natural gas processing plant"** means the processing equipment engaged in the extraction of natural gas liquid from natural gas or fractionation of mixed natural gas liquid to a natural gas product, or both. A Joule-Thompson valve, a dew point depression valve, or an isolated or standalone Joule-Thompson skid is not a natural gas processing plant.

**~~DD~~JJ.** **"New"** means constructed or reconstructed on or after the effective date of this Part.

**~~EE~~KK.** **"Non-Emitting controller"** means a device that monitors a process parameter such as liquid level, pressure, or temperature and sends a signal to a control valve in order to control the process parameter and does not emit natural gas to the atmosphere. Examples of non-emitting controllers include but are not limited to instrument air or inert gas pneumatic controllers, electric controllers, mechanical controllers and Routed Pneumatic Controllers.

**~~FF~~LL.** **"Occupied area"** means the following:

**(1)** a building or structure used as a place of residence by a person, family, or families, and includes manufactured, mobile, and modular homes, except to the extent that such manufactured, mobile, or modular home is intended for temporary occupancy or for business purposes;

**(2)** indoor or outdoor spaces associated with a school that students use commonly as part of their curriculum or extracurricular activities;

**(3)** five-thousand (5,000) or more square feet of building floor area in commercial facilities that are operating and normally occupied during working hours: and

**(4)** an outdoor venue or recreation area, such as a playground, permanent sports field, amphitheater, or similar place of outdoor public assembly.

**~~GG~~MM.** **"Operator"** means the person or persons responsible for the overall operation of a stationary source.

**~~HH~~NN. "Optical gas imaging (OGI)"** means an imaging technology that utilizes a high-sensitivity infrared camera designed for and capable of detecting hydrocarbons.

**~~II~~OO.** **"Owner"** means the person or persons who own a stationary source or part of a stationary source.

**~~JJ~~PP.** **"Permanent pit or pond"** means a pit or pond used for collection, retention, or storage of produced water or brine and is installed for longer than one year.

**~~KK~~QQ. "Pneumatic controller"** means a device that monitors a process parameter such as liquid level, pressure, or temperature and uses pressurized gas (which may be released to the atmosphere during normal operation) and sends a signal to a control valve in order to control the process parameter. Controllers that do not utilize pressurized gas are not pneumatic controllers.

**~~LL~~RR.** **"Pneumatic diaphragm pump"** means a positive displacement pump powered by pressurized gas that uses the reciprocating action of flexible diaphragms in conjunction with check valves to pump a fluid. A pump in which a fluid is displaced by a piston driven by a diaphragm is not considered a diaphragm pump. A lean glycol circulation pump that relies on energy exchange with the rich glycol from the contactor is not considered a diaphragm pump.

**~~MM~~SS. "Potential to emit (PTE)"** means the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on the hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is federally enforceable. The PTE for nitrogen dioxide shall be based on total oxides of nitrogen.

**TT. "Pre-production operations"** means the drilling through the hydrocarbon bearing zones, hydraulic fracturing or refracturing, drill-out, and flowback of an oil and/or natural gas well.

**~~NN~~UU. "Produced water"** means a liquid that is an incidental byproduct from well completion and the production of oil and gas.

**~~OO~~VV. "Produced water management unit"** means a recycling facility or a permanent pit or pond that is a natural topographical depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to accumulate produced water and has a design storage capacity equal to or greater than 50,000 barrels.

**~~PP~~WW. "Qualified Professional Engineer"** means an individual who is licensed by a state as a professional engineer to practice one or more disciplines of engineering and who is qualified by education, technical knowledge, and experience to make the specific technical certifications required under this Part.

**~~QQ~~XX. "Reciprocating compressor"** means a piece of equipment that increases the pressure of process gas by positive displacement, employing linear movement of a piston rod.

**~~RR~~YY. "Reconstruction"** means a modification that results in the replacement of the components or addition of integrally related equipment to an existing source, to such an extent that the fixed capital cost of the new components or equipment exceeds fifty percent of the fixed capital cost that would be required to construct a comparable entirely new facility.

**~~SS~~ZZ.** **"Recycling facility"** means a stationary or portable facility used exclusively for the treatment, re-use, or recycling of produced water and does not include oilfield equipment such as separators, heater treaters, and scrubbers in which produced water may be used.

**~~TT~~AAA.** **"Responsible official"** means one of the following:

**(1)** for a corporation: president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative.

**(2)** for a partnership or sole proprietorship: a general partner or the proprietor, respectively.

**~~UU~~BBB.** **"Routed pneumatic controller"** means a pneumatic controller of any type that releases natural gas to a process, sales line, or to a combustion device instead of directly to the atmosphere.

**~~VV~~CCC.** **"Small business facility"** means, for the purposes of this Part, a source that is independently owned or operated by a company that is a not a subsidiary or a division of another business, that employs no more than 10 employees at any time during the calendar year, and that has a gross annual revenue of less than $250,000. Employees include part-time, temporary, or limited service workers.

**~~WW~~DDD.** **"Standalone tank battery"** means a tank battery that is not designated as associated with a well site, gathering and boosting station, natural gas processing plant, or transmission compressor station.

**~~XX~~EEE.** **"Startup"** means the setting into operation of air pollution control equipment or process equipment.

**~~YY~~FFF.** **"Stationary Source"** or **"source"** means any building, structure, equipment, facility, installation (including temporary installations), operation, process, or portable stationary source that emits or may emit any air contaminant. Portable stationary source means a source that can be relocated to another operating site with limited dismantling and reassembly.

**~~ZZ~~GGG.** **"Storage vessel"** means a single tank or other vessel that is designed to contain an accumulation of hydrocarbon liquid or produced water and is constructed primarily of non-earthen material including wood, concrete, steel, fiberglass, or plastic, which provide structural support. A well completion vessel that receives recovered liquid from a well after commencement of operation for a period that exceeds 60 days is considered a storage vessel. A storage vessel does not include a vessel that is skid-mounted or permanently attached to a mobile source and located at the site for less than 180 consecutive days, such as a truck or railcar; a process vessel such as a surge control vessel, bottom receiver, or knockout vessel; a pressure vessel designed to operate in excess of 204.9 kilopascals (29.72 psi) without emissions to the atmosphere; or a floating roof tank complying with 40 CFR Part 60, Subpart Kb.

**~~AAA~~HHH.** **"Tank battery"** means a storage vessel or group of storage vessels that receive or store crude oil, condensate, or produced water from a well or wells for storage. The owner or operator shall designate whether a tank battery is a standalone tank battery or is associated with a well site, gathering and boosting station, natural gas processing plant, or transmission compressor station. The owner or operator shall maintain records of this designation and make them available to the department upon request. A tank battery associated with a well site, gathering or boosting station, natural gas processing plant, or transmission compressor station is subject to the requirements in this Part for those facilities, as applicable. Tank battery does not include storage vessels at saltwater disposal facilities or produced water management units.

**~~BBB~~III.** **"Temporarily abandoned well site"** means an inactive well site where the well's completion interval has been isolated. The completion interval is the reservoir interval that is open to the borehole and is isolated when tubing and artificial equipment has been removed and a bottom plug has been set.

**~~CCC~~JJJ.** **"Transmission compressor station"** means a facility, including all equipment and compressors, that moves pipeline quality natural gas at increased pressure from a well site or natural gas processing plant through a transmission pipeline for ultimate delivery to the local distribution company custody transfer station, underground storage, or to other industrial end users. Transmission compressor stations may include equipment for liquids separation, natural gas dehydration, and tanks for the storage of water and hydrocarbon liquids.

**~~DDD~~KKK.** **"Vessel measurement system"** means equipment and methods used to determine the quantity and quality of the liquids inside a vessel (including a flowback vessel) without requiring direct access through the vessel thief hatch or other opening.

**LLL.** **"Wellhead only facility"** means a well site that does not contain any production or processing equipment other than artificial lift natural gas driven pneumatic controllers and emergency shutdown device natural gas driven pneumatic controllers.

**~~EEE~~MMM.** **"Well workover"** means the repair or stimulation of an existing production well for the purpose of restoring, prolonging, or enhancing the production of hydrocarbons.

**~~FFF~~NNN.** **"Well site"** means the equipment under the operator's control directly associated with one or more oil wells or natural gas wells upstream of the natural gas processing plant or gathering and boosting station, if any. A well site may include equipment used for extraction, collection, routing, storage, separation, treating, dehydration, artificial lift, combustion, compression, pumping, metering, monitoring, and product piping. A well site does not include an injection well site.

[20.2.50.7 NMAC - N, XX/XX/2021]

**20.2.50.8 SEVERABILITY:** If any provision of this Part, or the application of this provision to any person or circumstance is held invalid, the remainder of this Part, or the application of this provision to any person or circumstance other than those as to which it is held invalid, shall not be affected thereby.

[20.2.50.8 NMAC - N, XX/XX/2021]

**20.2.50.9 CONSTRUCTION:** This Part shall be liberally construed to carry out its purpose.

[20.2.50.9 NMAC - N, XX/XX/2021]

**20.2.50.10 SAVINGS CLAUSE:** Repeal or supersession of prior versions of this Part shall not affect administrative or judicial action initiated under those prior versions.

[20.2.50.10 NMAC - N, XX/XX/2021]

**20.2.50.11 COMPLIANCE WITH OTHER REGULATIONS:** Compliance with this Part does not relieve a person from the responsibility to comply with other applicable federal, state, or local laws, rules or regulations, including more stringent controls.
[20.2.50.11 NMAC - N, XX/XX/2021]

**20.2.50.12 DOCUMENTS:** Documents incorporated and cited in this Part may be viewed at the New Mexico environment department, air quality bureau.
[20.2.50.12 NMAC - N, XX/XX/2021]
[The Air Quality Bureau is located at 525 Camino de los Marquez, Suite 1, Santa Fe, New Mexico 87505.]

**20.2.23.13-20.2.23.110** [**RESERVED**]

**20.2.50.111 APPLICABILITY:**

**A.** This Part applies to certain crude oil and natural gas production and processing equipment associated with operations that extract, collect, separate, dehydrate, store, process, transport, transmit, or handle hydrocarbon liquids or produced water in the areas specified in 20.2.50.2 NMAC and are located at well sites, tank batteries, gathering and boosting stations, natural gas processing plants, and transmission compressor stations, up to the point of the local distribution company custody transfer station.

**B.** In determining if any source is subject to this Part, including a small business facility as defined in this Part, the owner or operator shall calculate the Potential to Emit (PTE) of such source and shall have the PTE calculation certified by a qualified professional engineer or an inhouse engineer with expertise in the operation of oil and gas equipment, vapor control systems, and pressurized liquid samples. The emission standards and requirements of this Part may not be considered in the PTE calculation required in this Section or in determining if any source is subject to this Part. The calculation shall be kept on file for a minimum of five years and shall be provided to the department upon request.

**C.** An owner or operator of a small business facility as defined in this Part shall comply with the requirements of this Part as specified in 20.2.50.125 NMAC.

**D.** Oil transmission pipelines, oil refineries, natural gas transmission pipelines (except transmission compressor stations), and saltwater disposal facilities are not subject to this Part.
[20.2.50.111 NMAC - N, XX/XX/2021]

**20.2.50.112 GENERAL PROVISIONS:**

**A. General requirements:**

**(1)** Sources subject to emissions standards and requirements under this Part shall be operated and maintained consistent with manufacturer specifications, or good engineering and maintenance practices. When used in this Part, the term manufacturer specifications means either the original equipment manufacturer (or successor) emissions-related design specifications, maintenance practices and schedules, or an alternative set of specifications, maintenance practices and schedules sufficient to operate and maintain such sources in good working order, which have been approved by qualified maintenance personnel based on engineering principles and field experience. The owner or operator shall keep manufacturer specifications on file when available, as well as any alternative specifications that are being followed, and make them available upon request by the department. The terms of 20.2.50.112.A(1) apply any time reference to manufacturer specifications occurs in this Part.

**(2)** Sources, including associated air pollution control equipment and monitoring equipment, subject to emission standards or requirements under this Part shall at all times, including periods of startup, shutdown, and malfunction, be operated and maintained in a manner consistent with safety and good air pollution control practices for minimizing emissions of VOC and NOx. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires that the owner or operator reduce emissions from the affected source to the greatest extent consistent with safety and good air pollution control practices. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions beyond levels required by the applicable standard under this Part. The terms of 20.2.50.112.A(2) apply any time reference to minimizing emissions occurs in this Part.

**(3)** Within two years of the effective date of this Part, owners and operators of a source requiring equipment monitoring, testing, or inspection shall develop and implement a data system(s) capable of storing information for each source in a manner consistent with this section. The owner or operator shall maintain information regarding each source requiring equipment monitoring, testing, or inspection in a data system(s), including at a minimum, the following information:

**(a)** unique identification number;

**(b)** location (latitude and longitude) of the source;

**(c)** type of source (e.g., tank, VRU, dehydrator, pneumatic controller, etc.);

**(d)** for each source, the controlled VOC (and $NO_x$, if applicable) emissions in lbs./hr. and tpy;

**(e)** for a control device, the controlled VOC and $NO_x$ emissions in lbs./hr. and tpy;

**(f)** make, model, and serial number; and

**(g)** a link to the manufacturer maintenance schedule or repair recommendations, or company-specific operational and maintenance practices.

**(4)** The data system(s) shall be maintained by the owner or operator of the facility.

**(5)** The owner or operator shall manage the source's record of data in the data system(s). The owner or operator shall generate a Compliance Database Report (CDR) from the information in the data system. The CDR is an electronic report maintained by the owner or operator and that can be submitted to the department upon request.

**(6)** The CDR is a report distinct from the owner or operator's data system(s). The department does not require access to the owner or operator's data system(s), only the CDR.

**(7)** The owner or operator's authorized representative must be able to access and input data in the data system(s) record for that source. That access is not required to be at any time from any location.

**(8)** The owner or operator shall contemporaneously track each monitoring event, and shall comply with the following:

**(a)** data gathered during each monitoring or testing event shall be contemporaneously uploaded into the data system as soon as practicable, but no later than three business days of each compliance event, and when the final reports are received;

**(b)** certain sections of this Part require a date and time stamp, including a GPS display of the location, for certain monitoring events. By January 1, 2023, the department shall finalize a list of approved technologies to comply with date and time stamp requirements, and shall post the approved list on its website. Owners and operators shall comply with this requirement using an approved technology by April 1, 2023. Prior to April 1, 2023, owners and operators may comply with this requirement by making a written or electronic record of the date and time of any affected monitoring event; and

**(c)** data required by this Part shall be maintained in the data system(s) for at least five years.

**(9)** The department may request that an owner or operator retain a third party at their own expense to verify any data or information collected, reported, or recorded pursuant to this Part, and make recommendations to correct or improve the collection of data or information. Such requests may be made no more than once per year. The owner or operator shall submit a report of the verification and any recommendations made by the third party to the department by a date specified and implement the recommendations in the manner approved by the department. The owner or operator may request a hearing on whether good cause was demonstrated or whether the recommendations approved by the department must be implemented.

**(10)** Where Part 50 refers to applicable federal standards or requirements, the references refer to the applicable federal standards or requirements that were in effect at the time of the effective date of this Part.

**(11)** Prior to modifying an existing source, including but not limited to increasing a source's throughput or emissions, the owner or operator shall determine the applicability of this Part in accordance with 20.2.50.111.B NMAC.

**B. Monitoring requirements:**

**(1)** Unless otherwise specified, the term monitoring as used in this Part includes, but is not limited to, monitoring, testing, or inspection requirements.

**(2)** If equipment is shut down at the time of periodic testing, monitoring, or inspection required under this Part, the owner or operator shall not be required to restart the unit for the sole purpose of performing the testing, monitoring, or inspection, but shall note the shut down in the records kept for that equipment for that monitoring event.

**(3)** An owner or operator may submit for the department's review and approval an equally effective, enforceable, and equivalent alternative monitoring strategy under 20.2.50.116 NMAC. Such requests shall be made on an application form provided by the department. The department shall issue a letter approving or denying the requested alternative monitoring strategy. An owner or operator shall comply with the default monitoring requirements required under 20.2.50.116 NMAC and shall not operate under an alternative monitoring strategy until it has been approved by the department.

**(4)** For each monitoring event, the owner, operator, or authorized representative shall monitor as required by the applicable sections of this Part.

**C. Recordkeeping requirements:**

**(1)** Within three business days of a monitoring event and when final reports are received, an electronic record shall be made of the monitoring event and shall include the information required by the applicable sections of this Part.

**(2)** The owner or operator shall keep an electronic record required by this Part for five years.

**(3)** By July 1 of each calendar year starting in 2024, the owner or operator shall generate a Compliance Database Report (CDR) on all assets under its control that are subject to the CDR requirements of this Part at the time the CDR is prepared and keep this report on file for five years.

**D. Reporting requirements:** Within three business days of a request by the department, the owner or operator shall for each source subject to the request, provide the requested information by electronically submitting a CDR to the department's Secure Extranet Portal (SEP), or by other means and formats specified by the department in its request. If the department requests a CDR from multiple facilities, additional time will be given as appropriate.

[20.2.50.112 NMAC - N, XX/XX/2021]

**20.2.50.113 ENGINES AND TURBINES:**

**A. Applicability:** Portable and stationary natural gas-fired spark ignition engines, compression ignition engines, and natural gas-fired combustion turbines located at well sites, tank batteries, gathering and boosting stations, natural gas processing plants, and transmission compressor stations, with a rated horsepower greater than the horsepower ratings of table 1, 2, and 3 of 20.2.50.113 NMAC are subject to the requirements of 20.2.50.113 NMAC. Non-road engines as defined in 40 C.F.R. §§ 1068.30 are not subject to 20.2.50.113 NMAC.

**B. Emission standards:**

**(1)** The owner or operator of a portable or stationary natural gas-fired spark ignition engine, compression ignition engine, or natural gas-fired combustion turbine shall ensure compliance with the emission standards by the dates specified in Subsection B of 20.2.50.113 NMAC, except as otherwise specified under an Alternative Compliance Plan approved pursuant to Paragraph (10) of Subsection B of 20.2.50.113 NMAC or alternative emissions standards approved pursuant to Paragraph (11) of Subsection B of 20.2.50.113 NMAC.

**(2)** The owner or operator of an existing natural gas-fired spark ignition engine shall complete an inventory of all existing engines subject to this Part by January 1, 2023, and shall prepare a schedule to ensure that each existing engine does not exceed the emission standards in table 1 of Paragraph (2) of Subsection B of 20.2.50.113 NMAC as follows, except as otherwise specified under an Alternative Compliance Plan (ACP) approved pursuant to Paragraph (10) of Subsection B of 20.2.50.113 NMAC or alternative emissions standards approved pursuant to Paragraph (11) of Subsection B of 20.2.50.113 NMAC:

**(a)** by January 1, 2025, the owner or operator shall ensure at least thirty percent of the company's existing engines meet the emission standards.

**(b)** by January 1, 2027, the owner or operator shall ensure at least an additional thirty-five percent of the company's existing engines meet the emission standards.

**(c)** by January 1, 2029, the owner or operator shall ensure that the remaining thirty-five percent of the company's existing engines meet the emission standards.

**(d)** in lieu of meeting the emission standards for an existing natural gas-fired spark ignition engine, an owner or operator may reduce the annual hours of operation of an engine such that the annual PTE of NOx and VOC emissions are reduced to achieve an equivalent allowable ton per year emission reduction as set forth in table 1 of Paragraph (2) of Subsection B of 20.2.50.113 NMAC, or by at least ninety-five percent per year.

Table 1 - EMISSION STANDARDS FOR ~~EXISTING~~ NATURAL GAS-FIRED SPARK IGNITION ENGINES CONSTRUCTED, RECONSTRUCTED, AND INSTALLED BEFORE THE EFFECTIVE DATE OF 20.2.50 NMAC.

| Engine Type | Rated bhp | $NO_x$ | CO | NMNEHC (as propane) |
|---|---|---|---|---|
| 2 Stroke Lean Burn | >1,000 | 3.0 g/bhp-hr | 0.60 g/bhp-hr | 0.70 g/bhp-hr |
| 4-Stroke Lean | >1,000 bhp and | ~~2.0~~1.2 g/bhp-hr | 0.60 g/bhp-hr | 0.70 g/bhp-hr |

| | | | | |
|---|---|---|---|---|
| Burn | <1,775 bhp | | | |
| 4-Stroke Lean Burn | ≥1,775 bhp | 0.5 g/bhp-hr | 0.60 g/bhp-hr | 0.70 g/bhp-hr |
| Rich Burn | >1,000 bhp | 0.5 g/bhp-hr | 0.60 g/bhp-hr | 0.70 g/bhp-hr |

***Comment on Table 1:*** *The Community and Environmental Parties and the National Park Service propose a standard of* ***1.2 grams of NOx per horsepower hour*** *for existing 4SLBs with a rated horsepower between 1,000 and 1,775, a standard consistent with that currently in effect in Colorado. This proposal is substantially more protective than the standard the Environment Department currently proposes for these engines (which, at 2.0 grams of NOx per horsepower hour, is 40% higher than the standard applicable to identical engines in Colorado), but not as stringent as the Department's original proposal of 0.5 grams of NOx per horsepower hour.*

*The weight of the evidence shows that a standard of 1.2 grams of NOx per horsepower hour is cost effective and achievable. The Colorado Air Pollution Control Division conducted a regulatory impact analysis for its 2019 rule and found the standard to be cost effective and achievable for all existing 4SLBs. The rule has been implemented there without difficulty. Other jurisdictions have implemented even stricter limits for these engines. For example, since 2007, Texas has required existing lean-burn engines in the Dallas-Fort Worth ozone nonattainment area to meet a standard of 0.7 grams of NOx per horsepower hour. See 30 Tex. Admin. Code § 117.2110(a)(1)(B)(i). In fact, since any lean-burn engine built since 2010 must already comply with a 1.0 grams of NOx per horsepower hour standard under federal law (40 C.F.R. § 60.4230, subpart JJJJ, Table 1) a significant number of existing engines are already complying with the standard proposed by the Community and Environmental Parties and NPS.*

*No party presented evidence why New Mexico operators could not achieve a relatively lax limit of 1.2 grams of NOx per horsepower hour at existing 4SLBs. NMOGA's analysis was focused on showing that the cost to bring emissions down to 0.5 gram of NOx per horsepower hour would be excessive. 9 Tr. 2978:13–17; see also NMOGA, Statement of Intent to Present Technical Testimony at 83–91.*

*Even if there were evidence showing that some existing 4SLBs cannot comply with a standard of 1.2 grams of NOx per horsepower hour at reasonable cost, this would not show that the proposal of Community and Environmental Parties and NPS is unachievable. That is because Section 113 contains numerous alternative compliance options in the event a particular engine cannot comply with the proposed standard at reasonable cost. NMOGA's expert Justin Lisowski acknowledged that the alternative compliance mechanisms included in the Environment Department's proposal could, if properly implemented, allay concerns about adopting a more stringent standard for existing 4SLBs. 9 Tr. 2995:8–24.*

***Comment Regarding Applicability of Table 1 and Table 2:***

*The Community and Environmental Parties and the National Park Service propose returning to the Department's proposal in its Petition for Regulatory Change, which treats all engines or turbines "installed" after the effective date of the rule as "new" equipment subject to more stringent new-source standards.*

*The regulations the Environment Department proposed as part of its Petition would have treated newly "installed" engines as new sources subject to the most stringent emission limits. The rebuttal version deleted this proposal. See NMED Reb. Ex. 23 at 9 [redline showing changes to Section 113 adopted between Petition/direct NOI and rebuttal NOI]. NMED did not provide an explanation why it deleted this proposal. See NMED Reb. Ex. 1 at 28.*

*The evidence indicates that, if operators can install old engines at new facilities in New Mexico without complying with new engine standards, New Mexico may become a dumping ground for old, high-pollution equipment that is no longer allowed in other states. 9 Tr. 2976:1–7. Notably, Colorado applies more stringent new source controls to engines that are "placed in service, modified, or relocated" after the effective date of its engines rule. 5 Colo. Code Regs. § 1001-9-E-I (Table 2) (emphasis added). New Mexico should do the same.*

**(3)** The owner or operator of a new natural gas-fired spark ignition engine shall ensure the engine does not exceed the emission standards in table 2 of Paragraph (3) of Subsection B of 20.2.50.113 NMAC upon startup.

Table 2 - EMISSION STANDARDS FOR ~~NEW~~ NATURAL GAS-FIRED SPARK IGNITION ENGINES CONSTRUCTED, RECONSTRUCTED, OR INSTALLED AFTER THE EFFECTIVE DATE OF 20.2.50 NMAC.

| Engine Type | Rated bhp | $NO_x$ | CO | NMNEHC (as propane) |
|---|---|---|---|---|
| Lean-burn | > 500 and < 1875 | 0.50 g/bhp-hr | 0.60 g/bhp-hr | 0.70 g/bhp-hr |
| Lean-burn | ≥ 1875 | 0.30 g/bhp-hr | 0.60 g/bhp-hr | 0.70 g/bhp-hr |
| Rich-burn | >500 | 0.50 g/bhp-hr | 0.60 g/bhp-hr | 0.70 g/bhp-hr |

**(4)** The owner or operator of a natural gas-fired spark ignition engine with $NO_x$ emission control technology that uses ammonia or urea as a reagent shall ensure that the exhaust ammonia slip is limited to 10 ppmvd or less, corrected to fifteen percent oxygen.

**(5)** The owner or operator of a compression ignition engine shall ensure compliance with the following emission standards:

**(a)** a new portable or stationary compression ignition engine with a maximum design power output equal to or greater than 500 horsepower that is not subject to the emission standards under Subparagraph (b) of Paragraph (5) of Subsection B of 20.2.50.113 NMAC shall limit $NO_x$ emissions to not more than nine g/bhp-hr upon startup.

**(b)** a stationary compression ignition engine that is subject to and complying with Subpart IIII of 40 CFR Part 60, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, is not subject to the requirements of Subparagraph (a) of Paragraph (5) of Subsection B of 20.2.50.113 NMAC.

**(6)** The owner or operator of a portable or stationary compression ignition engine with $NO_x$ emission control technology that uses ammonia or urea as a reagent shall ensure that the exhaust ammonia slip is limited to 10 ppmvd or less, corrected to fifteen percent oxygen.

**(7)** The owner or operator of a stationary natural gas-fired combustion turbine with a maximum design rating equal to or greater than 1,000 bhp shall comply with the applicable emission standards for an existing, new, or reconstructed turbine listed in table 3 of Paragraph (7) of Subsection B of 20.2.50.113 NMAC.

**(a)** The owner or operator of an existing stationary natural gas-fired combustion turbine shall complete an inventory of all existing turbines subject to Part 50 by July 1, 2023, and shall prepare a schedule to ensure that each subject existing turbine does not exceed the emission standards in table 3 of Paragraph (7) of Subsection B of 20.2.50.113 NMAC as follows, except as otherwise specified under an Alternative Compliance Plan approved pursuant to Paragraph (10) of Subsection B of 20.2.50.113 NMAC or alternative emissions standards approved pursuant to Paragraph (11) of Subsection B of 20.2.50.113 NMAC:

**(i)** by January 1, 2024, the owner or operator shall ensure at least thirty percent of the company's existing turbines meet the emission standards.

**(ii)** by January 1, 2026, the owner or operator shall ensure at least an additional thirty-five percent of the company's existing turbines meet the emission standards.

**(iii)** by January 1, 2028, the owner or operator shall ensure that the remaining thirty-five percent of the company's existing turbines meet the emission standards.

**(iv)** in lieu of meeting the emission standards for an existing stationary natural gas-fired combustion turbine, an owner or operator may reduce the annual hours of operation of a turbine such that the annual PTE of NOx and VOC emissions are reduced to achieve an equivalent allowable ton per year emission reduction as set forth in table 3 of Paragraph (7) of Subsection B of 20.2.50.113 NMAC, or by at least ninety-five percent per year.

Table 3 - EMISSION STANDARDS FOR STATIONARY COMBUSTION TURBINES

| **For each applicable ~~existing~~ natural gas-fired combustion turbine constructed, reconstructed, and installed before the effective date of 20.2.50 NMAC, the owner or operator shall ensure the turbine does not exceed the following emission standards no later than the schedule set forth in Paragraph (7)(a) of Subsection B of 20.2.50.113 NMAC:** | | | |
|---|---|---|---|
| Turbine Rating (bhp) | $NO_x$ (ppmvd @15% $O_2$) | CO (ppmvd @ 15% $O_2$) | NMNEHC (as propane, ppmvd @15% $O_2$) |

| | | | |
|---|---|---|---|
| ≥1,000 and <4,100 | 150 | 50 | 9 |
| ≥4,100 and <15,000 | 50 | 50 | 9 |
| ≥15,000 | 50 | 50 or 93% reduction | 5 or 50% reduction |
| **For each applicable ~~new~~ natural gas-fired combustion turbine constructed, reconstructed, or installed after the effective date of 20.2.50 NMAC, the owner or operator shall ensure the turbine does not exceed the following emission standards upon startup:** | | | |
| Turbine Rating (bhp) | $NO_x$ (ppmvd @15% $O_2$) | CO (ppmvd @ 15% $O_2$) | NMNEHC (as propane, ppmvd @15% $O_2$) |
| ≥1,000 and <4,000 | 100 | 25 | 9 |
| ≥4,000 and <15,900 | 15 | 10 | 9 |
| ≥15,900 | 9.0 Uncontrolled or 2.0 with Control | 10 Uncontrolled or 1.8 with Control | 5 |

**(8)** The owner or operator of a stationary natural gas-fired combustion turbine with $NO_x$ emission control technology that uses ammonia or urea as a reagent shall ensure that the exhaust ammonia slip is limited to 10 ppmvd or less, corrected to fifteen percent oxygen.

**(9)** The owner or operator of an emergency use engine as defined by 40 C.F.R. §§ 60.4211, 60.4243, or 63.6675 is not subject to the emissions standards in this Part but shall be equipped with a non-resettable hour meter to monitor and record any hours of operation.

**(10)** In lieu of complying with the emission standards for individual engines and turbines established in Subsection B of 20.2.50.113 NMAC, an owner or operator may elect to comply with the emission standards through an Alternative Compliance Plan (ACP) approved by the department. An ACP must include the list of engines or turbines subject to the ACP, and a demonstration that the total allowable emissions for the engines or turbines subject to the ACP will not exceed the total allowable emissions under the emission standards of this Part. Prior to submitting a proposed ACP to the Department, the owner or operator shall comply with the following requirements in the order listed:

**(a)** The owner or operator shall contract with an independent third-party engineering or consulting firm to conduct a technical and regulatory review of the ACP proposal. The selected firm shall review the proposal to determine if it meets the requirements of this Part, and shall prepare and certify an evaluation of the proposed ACP indicting whether the ACP proposal adheres to the requirements of this Part.

**(b)** Following the independent third-party review, the owner or operator shall provide the ACP, along with the third-party evaluation and findings, to the department for posting on the department's website. The department shall post the ACP and the third-party review within 15 days of receipt.

**(c)** Following posting by the department, the owner or operator shall publish a notice in a newspaper of general circulation announcing the ACP proposal, the dates it will be available for review and comment by the public, and information on how and where to submit comments. The dates specified in the public notice must provide for a thirty-day comment period.

**(d)** Following the close of the thirty-day notice and comment period, the department shall send the comments submitted on the ACP proposal and findings to the owner or operator. The owner or operator shall provide written responses to all comments to the department.

**(e)** Following receipt of the owner or operator's responses to comments received during the thirty-day comment period, the department shall make a determination whether to approve or deny the ACP proposal within 90 days. The department shall approve an ACP that meets the requirements of this Part, unless the department determines that the total allowable emissions under the ACP exceed the total allowable emissions under the emission standards of 20.2.50.113 NMAC. If approved by the department, the emission reductions and associated emission limits for the affected engines or turbines shall become enforceable terms under this Part.

**(11)** The owner or operator may submit a request for alternative emission standards for a specific engine or turbine based on technical impracticability or economic infeasibility. The owner or operator is not required to submit an ACP proposal under Paragraph (10) of Subsection B of 20.2.50.113 NMAC prior to submission of a request for alternative emissions standards under this Paragraph (11), provided that the owner or operator satisfies Subparagraph (b) of Paragraph (11) of Subsection B of 20.2.50.113 NMAC, below. To qualify for an alternative emission standard, an owner or operator must comply with the following requirements:

**(a)** prepare a reasonable demonstration detailing why it is not technically practicable or economically feasible for the individual engine or turbine to achieve the emissions standards in table 1 of Paragraph (2) of Subsection B of 20.2.50.113 NMAC or table 3 of Paragraph (7) of Subsection B of 20.2.50.113 NMAC, as applicable;

**(b)** prepare a demonstration detailing why emissions from the individual engine or turbine cannot be addressed through an ACP in a technically practicable or economically feasible manner;

**(c)** prepare a technical analysis for the affected engine or turbine specifying the emission reductions that can be achieved through other means, such as combustion modifications or capacity limitations. The technical analysis shall include an analysis of any previous modifications of the source and a determination whether such modifications meet the definition of a reconstructed source, such that the source should be considered a new source under federal regulations. The analysis shall include a certification that the modifications to the source are not in violation of any state or federal air quality regulation; and

**(d)** fulfill the requirements of Subparagraphs (a) through (c) of Paragraph (10) of Subsection B of 20.2.50.113 NMAC.

**(e)** Following the close of the thirty-day notice and comment period, the department shall send the comments submitted on the alternative emission standards and findings to the owner or operator. The owner or operator shall provide written responses to all comments to the department.

**(f)** Following receipt of the owner or operator's responses to comments received during the thirty-day comment period, the department shall make a determination whether to approve or deny the alternative emission standards within 90 days. If approved by the department, the emission reductions and alternative emission standards for the affected engine or turbine shall become enforceable terms under this Part.

**(g)** If approved by the department, the emissions reductions and alternative standards for the affected engine or turbine shall become enforceable terms under this Part.

**(12)** A short-term replacement engine may be substituted for any engine subject to Section 20.2.50.113 NMAC consistent with any applicable air quality permit containing allowances for short term replacement engines, including but not limited to New Source Review and General Construction Permits issued under 20.2.72 NMAC. A short-term engine replacement is not considered a "new" engine for purposes of this Part unless the engine it replaces is a "new" engine within the meaning of this Part. The reinstallation of the existing engine following removal of the short-term replacement engine is not considered a "new" engine under this Part unless the engine was "new" prior to the temporary replacement.

**C. Monitoring requirements:**

**(1)** Maintenance and repair for a spark ignition engine, compression ignition engine, and stationary combustion turbine shall meet the manufacturer recommended maintenance schedule as defined in 20.2.50.112 NMAC.

**(2)** Maintenance conducted consistent with an applicable NSPS or NESHAP requirement shall be deemed to be in compliance with 20.2.50.113.C(1) NMAC.

**(3)** Catalytic converters (oxidative, selective, and non-selective) and AFR controllers shall be inspected and maintained according to manufacturer specifications as defined in 20.2.50.112 NMAC, and shall include replacement of oxygen sensors as necessary for oxygen-based controllers. During periods of catalytic converter or AFR controller maintenance, the owner or operator shall shut down the engine or turbine until the catalytic converter or AFR controller can be replaced with a functionally equivalent spare to allow the engine or turbine to return to operation.

**(4)** For equipment operated for 500 hours per year or more, compliance with the emission standards in Subsection B of 20.2.50.113 NMAC shall be demonstrated within 180 days of the effective date applicable to the source as defined by Subsection B(2) and (7) or, if installed more than 180 days after the effective date, within 60 days after achieving the maximum production rate at which the source will be operated, but not later than 180 days after initial startup of such source. Compliance with the applicable emission standards shall be demonstrated by performing an initial emission test for NOx and VOC, as defined in 40 CFR 51.100(s) using U.S. EPA reference methods or ASTM D6348. Periodic monitoring shall be conducted annually to demonstrate compliance with the allowable emission standards and may be demonstrated utilizing a portable analyzer or EPA reference methods. For units with g/hp-hr emission standards, the engine load shall be calculated using the following equations:

$$\text{Load (Hp)} = \frac{\text{Fuel consumption (scf/hr) x Measured fuel heating value (LHV btu/scf)}}{\text{Manufacturer's rated BSFC (btu/bhp-hr) at 100\% load or best efficiency}}$$

$$\text{Load (Hp)} = \frac{\text{Fuel consumption (gal/hr) x Measured fuel heating value (LHV btu/gal)}}{\text{Manufacturer's rated BSFC (btu/bhp-hr) at 100\% load or best efficiency}}$$

Where: LVH = lower heating value, btu/scf, or btu/gal, as appropriate; and
BSFC = brake specific fuel consumption

If the manufacturer's rated BSFC is not available, an operator may use an alternative load calculation methodology based on available data.

**(a)** emissions testing events shall be conducted within 10 percent of 100 percent peak (or the highest achievable) load. The load and the parameters used to calculate it shall be recorded to document operating conditions at the time of testing and shall be included with the test report.

**(b)** emissions testing utilizing a portable analyzer shall be conducted in accordance with the requirements of the current version of ASTM D6522. If a portable analyzer has met a previously approved department criterion, the analyzer may be operated in accordance with that criterion until it is replaced.

**(c)** the default time period for a test run shall be at least 20 minutes.

**(d)** an emissions test shall consist of three separate runs, with the arithmetic mean of the results from the three runs used to determine compliance with the applicable emission standard.

**(e)** during emissions tests, pollutant and diluent concentration shall be monitored and recorded. Fuel flow rate shall be monitored and recorded if stack gas flow rate is determined utilizing U.S. EPA reference method 19. This information shall be included with the periodic test report.

**(f)** stack gas flow rate shall be calculated in accordance with U.S. EPA reference method 19 utilizing fuel flow rate (scf) determined by a dedicated fuel flow meter and fuel heating value (Btu/scf). The owner or operator shall provide a contemporaneous fuel gas analysis (preferably on the day of the test, but no earlier than three months before the test date) and a recent fuel flow meter calibration certificate (within the most recent quarter) with the final test report. Alternatively, stack gas flow rate may be determined by using U.S. EPA reference methods 1 through 4 or through the use of manufacturer provided fuel consumption rates.

**(g)** upon request by the department, an owner or operator shall submit a notification and protocol for an initial or annual emissions test.

**(h)** emissions testing shall be conducted at least once per calendar year. Emission testing required by Subparts GG, IIII, JJJJ, or KKKK of 40 CFR 60, or Subpart ZZZZ of 40 CFR 63, may be used to satisfy the emissions testing requirements if it meets the requirements of 20.2.50.113 NMAC and is completed at least once per calendar year.

**(i)** The results of emissions testing demonstrating compliance with the emission standard for CO may be used as a surrogate to demonstrate compliance with the emission standard for NMNEHC.

**(5)** The owner or operator of equipment operated less than 500 hours per year shall monitor the hours of operation using a non-resettable hour meter and shall test the unit at least once per 8760 hours of operation in accordance with the emissions testing requirements in Paragraph (4) of Subsection C of 20.2.50.113 NMAC.

**(6)** An owner or operator of an emergency use engine as defined by 40 C.F.R. §§ 60.4211, 60.4243, or 63.6675 shall monitor the hours of operation by a non-resettable hour meter.

**(7)** An owner or operator limiting the annual operating hours of an engine or turbine to meet the requirements of Paragraph (2) or (7) of Subsection B of 20.2.50.113 NMAC shall monitor the hours of operation by a non-resettable hour meter.

**(8)** Prior to any monitoring, testing, inspection, or maintenance of an engine or turbine, the owner or operator shall date and time stamp the event, and the monitoring data entry shall be made in accordance with the requirements of 20.2.50.112 and 113 NMAC.

**D. Recordkeeping requirements:**

**(1)** The owner or operator of a spark ignition engine, compression ignition engine, or stationary combustion turbine shall maintain a record in accordance with 20.2.50.112 NMAC for the engine or turbine. The record shall include:

**(a)** the make, model, serial number, and unique identification number for the engine or turbine;

**(b)** location of the source (latitude and longitude);

**(c)** a copy of the engine, turbine, or control device manufacturer recommended maintenance and repair schedule as defined in 20.2.50.112 NMAC; and

**(d)** all inspection, maintenance, or repair activity on the engine, turbine, and control device, including:

**(i)** the date and time stamp(s), including GPS of the location, of an inspection, maintenance, or repair;

**(ii)** the date a subsequent analysis was performed (if applicable);

**(iii)** the name of the person(s) conducting the inspection, maintenance or repair;

**(iv)** a description of the physical condition of the equipment as found during the inspection;

**(v)** a description of maintenance or repair conducted; and

**(vi)** the results of the inspection and any required corrective actions.

**(2)** The owner or operator of a spark ignition engine, compression ignition engine, or stationary combustion turbine shall maintain records of initial and annual emissions testing for the engine or turbine for a period of five years. The records shall include:

**(a)** make, model, and serial number for the tested engine or turbine;

**(b)** the date and time stamp(s), including GPS of the location, of any monitoring event, including sampling or measurements;

**(c)** date analyses were performed;

**(d)** name of the person(s) and the qualified entity that performed the analyses;

**(e)** analytical or test methods used;

**(f)** results of analyses or tests;

**(g)** calculated emissions of NOx and VOC in lb/hr and tpy; and

**(h)** operating conditions at the time of sampling or measurement.

**(3)** The owner or operator of an emergency use engine as defined by 40 C.F.R. §§ 60.4211, 60.4243, or 63.6675 shall record the total annual hours of operation as recorded by the non-resettable hour meter.

**(4)** The owner or operator limiting the annual operating hours of an engine or turbine to meet the requirements of Paragraph (2) or (7) of Subsection B of 20.2.50.113 NMAC shall record the hours of operation by a non-resettable hour meter. The owner or operator shall calculate and record the annual NOx and VOC emission calculation, based on the engine or turbine's actual hours of operation, to demonstrate that an equivalent allowable ton per year emission reduction as set forth in table 1 or table 3 of Paragraph (2) or (7) of Subsection B of 20.2.50.113 NMAC, or the ninety-five percent emission reduction requirement is met.

**E. Reporting requirements:** The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

[20.2.50.113 NM–C - N, XX/XX/2021]

**20.2.50.114 COMPRESSOR SEALS:**

**A. Applicability:**

**(1)** Centrifugal compressors using wet seals and located at tank batteries, gathering and boosting stations, and natural gas processing plants are subject to the requirements of 20.2.50.114 NMAC. Centrifugal compressors located at well sites and transmission compressor stations are not subject to the requirements of 20.2.50.114 NMAC.

**(2)** Reciprocating compressors located at tank batteries, gathering and boosting stations, and natural gas processing plants are subject to the requirements of 20.2.50.114 NMAC. Reciprocating compressors located at well sites and transmission compressor stations are not subject to the requirements of 20.2.50.114 NMAC.

**B. Emission standards:**

**(1)** The owner or operator of an existing centrifugal compressor with wet seals shall control VOC emissions from a centrifugal compressor wet seal fluid degassing system by at least ninety-five percent within two years of the effective date of this Part. Emissions shall be captured and routed via a closed vent system to a control device, recovery system, fuel cell, or a process stream.

**(2)** The owner or operator of an existing reciprocating compressor shall, either:

**(a)** replace the reciprocating compressor rod packing after every 26,000 hours of compressor operation or every 36 months, whichever is reached later. The owner or operator shall begin counting the hours of compressor operation toward the first replacement of the rod packing upon the effective date of this

Part; or

**(b)** beginning no later than two years from the effective date of this Part, collect emissions from the rod packing, and route them via a closed vent system to a control device, recovery system, fuel cell, or a process stream.

**(3)** The owner or operator of a new centrifugal compressor with wet seals shall control VOC emissions from the centrifugal compressor wet seal fluid degassing system by at least ninety-five percent upon startup. Emissions shall be captured and routed via a closed vent system to a control device, recovery system, fuel cell, or process stream.

**(4)** The owner or operator of a new reciprocating compressor shall, upon startup, either:

**(a)** replace the reciprocating compressor rod packing after every 26,000 hours of compressor operation, or every 36 months, whichever is reached later; or

**(b)** collect emissions from the rod packing and route them via a closed vent system to a control device, a recovery system, fuel cell, or a process stream.

**(5)** The owner or operator complying with the emission standards in Subsection B of 20.2.50.114 NMAC through use of a control device shall comply with the control device requirements in 20.2.50.115 NMAC.

**C. Monitoring requirements:**

**(1)** The owner or operator of a centrifugal compressor complying with Paragraph (1) or (3) of Subsection B of 20.2.50.114 NMAC shall maintain a closed vent system encompassing the wet seal fluid degassing system that complies with the monitoring requirements in 20.2.50.115 NMAC.

**(2)** The owner or operator of a reciprocating compressor complying with Subparagraph (a) of Paragraph (2) or Subparagraph (a) of Paragraph (4) of Subsection B of 20.2.50.114 NMAC shall continuously monitor the hours of operation with a non-resettable hour meter and track the number of hours since initial startup or since the previous reciprocating compressor rod packing replacement.

**(3)** The owner or operator of a reciprocating compressor complying with Subparagraph (b) of Paragraph (2) or Subparagraph (b) of Paragraph (4) of Subsection B of 20.2.50.114 NMAC shall monitor the rod packing emissions collection system semiannually to ensure that it operates as designed and routes emissions through a closed vent system to a control device, recovery system, fuel cell, or process stream.

**(4)** The owner or operator of a centrifugal or reciprocating compressor complying with the requirements in Subsection B of 20.2.50.114 NMAC through use of a closed vent system or control device shall comply with the monitoring requirements in 20.2.50.115 NMAC.

**(5)** The owner or operator of a centrifugal or reciprocating compressor shall comply with the monitoring requirements in 20.2.50.112 NMAC.

**D. Recordkeeping requirements:**

**(1)** The owner or operator of a centrifugal compressor using a wet seal fluid degassing system shall maintain a record of the following:

**(a)** the location (latitude and longitude) of the centrifugal compressor;

**(b)** the date of construction, reconstruction, or modification of the centrifugal compressor;

**(c)** the monitoring required in Subsection C of 20.2.50.114 NMAC, including the time and date of the monitoring, the person(s) conducting the monitoring, a description of any problem observed during the monitoring, and a description of any corrective action taken; and

**(d)** the type, make, model, and unique identification number or equivalent identifier of a control device used to comply with the control requirements in Subsection B of 20.2.50.114 NMAC.

**(2)** The owner or operator of a reciprocating compressor shall maintain a record of the following:

**(a)** the location (latitude and longitude) of the reciprocating compressor;

**(b)** the date of construction, reconstruction, or modification of the reciprocating compressor; and

**(c)** the monitoring required in Subsection C of 20.2.50.114 NMAC, including:

**(i)** the number of hours of operation since the effective date, initial startup after the effective date, or the last rod packing replacement, as applicable;

**(ii)** data showing the effectiveness of the rod packing emissions collection system, as applicable; and

**(iii)** the time and date of the inspection, the person(s) conducting the inspection, a description of any problems observed during the inspection, and a description of corrective actions taken.

**(3)** The owner or operator of a centrifugal or reciprocating compressor complying with the requirements in Subsection B of 20.2.50.114 NMAC through use of a control device or closed vent system shall comply with the recordkeeping requirements in 20.2.50.115 NMAC.

**(4)** The owner or operator of a centrifugal or reciprocating compressor shall comply with the recordkeeping requirements in 20.2.50.112 NMAC.

**E. Reporting requirements:** The owner or operator of a centrifugal or reciprocating compressor shall comply with the reporting requirements in 20.2.50.112 NMAC.

[20.2.50.114 NM–C - N, XX/XX/2021]

**20.2.50.115 CONTROL DEVICES AND CLOSED VENT SYSTEMS:**

**A. Applicability:** These requirements apply to control devices and closed vent systems as defined in 20.2.50.7 NMAC and used to comply with the emission standards and emission reduction requirements in this Part.

**B. General requirements:**

**(1)** Control devices used to demonstrate compliance with this Part shall be installed, operated, and maintained consistent with manufacturer specifications, and good engineering and maintenance practices.

**(2)** Control devices shall be adequately designed and sized to achieve the control efficiency rates required by this Part and to handle the reasonably expected range of inlet VOC or NOx concentrations or volumes.

**(3)** The owner or operator shall inspect control devices visually or consistent with applicable federally approved inspection methods at least monthly to identify defects, leaks, and releases, and to ensure proper operation. Prior to an inspection or monitoring event, the owner or operator shall date and time stamp the event, and the required monitoring data entry shall be made in accordance with this Part.

**(4)** The owner or operator shall ensure that a control device used to comply with emission standards in this Part operates as a closed vent system that captures and routes VOC emissions to the control device, in order to minimize venting of unburnt gas to the atmosphere.

**(5)** The owner or operator of a permanent closed vent system for a centrifugal compressor wet seal fluid degassing system, reciprocating compressor, natural gas driven pneumatic pump, or storage vessel using a control device or routing emissions to a process shall:

**(a)** ensure the control device or process is of sufficient design and capacity to accommodate the expected range of emissions from the affected sources;

**(b)** conduct an assessment to confirm that the closed vent system is of sufficient design and capacity to ensure that emissions from the affected equipment are routed to the control device or process; and

**(c)** have the assessment certified by a qualified professional engineer or an in-house engineer with expertise regarding the design and operation of closed vent system(s) in accordance with Paragraphs (c)(i) and (ii) of this Section.

**(i)** The assessment of the closed vent system shall be prepared under the direction or supervision of a qualified professional engineer or an in-house engineer who signs the certification in Paragraph (c)(ii) of this Section.

**(ii)** the owner or operator shall provide the following certification, signed and dated by a qualified professional engineer or an in-house engineer: "I certify that the closed vent system assessment was prepared under my direction or supervision. I further certify that the closed vent system assessment was conducted, and this report was prepared, pursuant to the requirements of this Part. Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete."

**(d)** an owner or operator of an existing closed vent system shall comply with the requirements of Paragraph (5) of Subsection B of 20.2.50.115 NMAC within three years of the effective date of this Part and within 90 days of startup for a new closed vent system.

**(6)** The owner or operator shall keep manufacturer specifications for all control devices on file. The information shall include the unique identification number, type of unit, manufacturer name, make, model, capacity, and destruction or reduction efficiency data.

**C. Requirements for open flares:**

**(1)** Emission standards:

**(a)** the flare shall be properly sized and designed to ensure proper combustion efficiency to combust the gas sent to the flare, and combustion shall be maintained for the duration of time that gas is sent to the flare. The owner or operator shall not send gas to the flare in excess of the manufacturer maximum rated capacity.

**(b)** the owner or operator shall equip each new and existing flare (except those flares required to meet the requirements of Paragraph (c) of this Subsection) with a continuous pilot flame, an operational auto-igniter, or require manual ignition, and shall comply with the following no later than one year after the effective date of this part, unless otherwise specified:

**(i)** a flare with a continuous pilot flame or an auto-igniter shall be equipped with a system to ensure the flare is operated with a flame present at all times when gas is being sent to the flare.

**(ii)** the owner or operator of a flare with manual ignition shall inspect and ensure a flame is present upon initiating a flaring event.

**(iii)** a new flare controlling a continuous gas stream shall be equipped with a continuous pilot flame upon startup.

**(iv)** an existing flare controlling a continuous gas stream shall be equipped with a continuous pilot.

**(c)** an existing flare located at a site with an annual average daily production of equal to or less than 10 barrels of oil per day or an average daily production of 60,000 standard cubic feet of natural gas shall be equipped with an auto-ignitor, continuous pilot, or technology (e.g. alarm) that alerts the owner or operator of a flare malfunction, if replaced or reconstructed after the effective date of this Part.

**(d)** the owner or operator shall operate a flare with no visible emissions, except for periods not to exceed a total of 30 seconds during any 15 consecutive minutes. The flare shall be designed so that an observer can, by means of visual observation from the outside of the flare or by other means such as a continuous monitoring device, determine whether it is operating properly. The observation may be terminated if visible emissions are observed and recorded and action is taken to address the visible emissions.

**(e)** the owner or operator shall repair the flare within three business days of any thermocouple or other flame detection device alarm activation.

**(2)** Monitoring requirements:

**(a)** the owner or operator of a flare with a continuous pilot or auto-igniter shall continuously monitor the presence of a pilot flame, or presence of flame during flaring if using an auto-igniter, using a thermocouple equipped with a continuous recorder and alarm to detect the presence of a flame. An alternative equivalent technology alerting the owner or operator of failure of ignition of the gas stream may be used in lieu of a continuous recorder and alarm, if approved by the department;

**(b)** the owner or operator of a manually ignited flare shall monitor the presence of a flame using continuous visual observation during a flaring event;

**(c)** the owner or operator shall, at least quarterly, and upon observing visible emissions, perform a U.S. EPA method 22 observation while the flare pilot or auto-igniter flame is present to certify compliance with visible emission requirements. The observation period shall be a minimum of 15 consecutive minutes. The observation may be terminated if visible emissions are observed and recorded and action is taken to address the visible emissions;

**(d)** prior to an inspection or monitoring event, the owner or operator shall date and time stamp the event, and the required monitoring data entry shall be made in accordance with this Part; and

**(e)** the owner or operator shall monitor the technology that alerts the owner or operator of a flare malfunction and any instances of technology or alarm activation.

**(3)** Recordkeeping requirements: The owner or operator of an open flare shall keep a record of the following:

**(a)** any instance of thermocouple or other approved technology or flame detection device alarm activation, including the date and cause of alarm activation, action taken to bring the flare into a normal operating condition, the name of the person(s) conducting the inspection, and any maintenance activity performed;

**(b)** the results of the U.S. EPA method 22 observations;

**(c)** the monitoring of the presence of a flame on a manual flare during a flaring event as required under Subparagraph (b) of Paragraph (2) of Subsection C of 20.2.50.115 NMAC;

**(d)** the results of the most recent gas analysis for the gas being flared, including VOC content and heating value; and

**(e)** the data and time stamp(s), including GPS of the location, of any monitoring event.

**(4)** Reporting requirements: The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

**D. Requirements for enclosed combustion devices (ECD) and thermal oxidizers (TO):**

**(1)** Emission standards:

**(a)** the ECD/TO shall be properly sized and designed to ensure proper combustion efficiency to combust the gas sent to the ECD/TO. The owner or operator shall not send gas to the ECD/TO in excess of the manufacturer maximum rated capacity.

**(b)** the owner or operator shall equip each new ECD/TO with a continuous pilot flame or an auto-igniter upon startup. Existing ECD/TO shall be equipped with a continuous pilot flame or an auto-igniter no later than two years after the effective date of this Part.

**(c)** ECD/TO with a continuous pilot flame or an auto-igniter shall be equipped with a system to ensure that the ECD/TO is operated with a flame present at all times when gas is sent to the ECD/TO. Combustion shall be maintained for the duration of time that gas is sent to the ECD/TO. New ECD/TOs shall comply with this requirement upon startup, and existing ECD/TOs shall comply with this requirement within 2 years of the effective date of this Part.

**(d)** the owner or operator shall operate an ECD/TO with no visible emissions, except for periods not to exceed a total of 30 seconds during any 15 consecutive minutes. The ECD/TO shall be designed so that an observer can, by means of visual observation from the outside of the ECD/TO or by other means such as a continuous monitoring device, determine whether it is operating properly. The observation may be terminated if visible emissions are observed and recorded and action is taken to address the visible emissions.

**(2)** Monitoring requirements:

**(a)** the owner or operator of an ECD/TO with a continuous pilot or an auto-igniter shall continuously monitor the presence of a pilot flame, or of a flame during combustion if using an auto-igniter, using a thermocouple equipped with a continuous recorder and alarm to detect the presence of a flame. An alternative equivalent technology alerting the owner or operator of failure of ignition of the gas stream may be used in lieu of a continuous recorder and alarm, if approved by the department.

**(b)** the owner or operator shall, at least quarterly, and upon observing visible emissions, perform a U.S. EPA method 22 observation while the ECD/TO pilot flame or auto-igniter flame is present to certify compliance with the visible emission requirements. The period of observation shall be a minimum of 15 consecutive minutes. The observation may be terminated if visible emissions are observed and recorded and action is taken to address the visible emissions.

**(c)** prior to an inspection or monitoring event, the owner or operator shall date and time stamp the event, and the required monitoring data entry shall be made in accordance with the monitoring requirements of this Part.

**(3)** Recordkeeping requirements: The owner or operator of an ECD/TO shall keep records of the following:

**(a)** any instance of a thermocouple or other approved technology or flame detection device alarm activation, including the date and cause of the activation, any action taken to bring the ECD/TO into normal operating condition, the name of the person(s) conducting the inspection, and any maintenance activities performed;

**(b)** the results of the U.S. EPA method 22 observations;

**(c)** the data and time stamp(s), including GPS of the location, of any monitoring event; and

**(d)** the results of the most recent gas analysis for the gas being combusted, including VOC content and heating value.

**(4)** Reporting requirements: The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

**E. Requirements for vapor recover units (VRU):**

**(1)** Emission standards:

**(a)** the owner or operator shall operate the VRU as a closed vent system that captures and routes all VOC emissions directly back to the process or to a sales pipeline and does not vent to the atmosphere.

**(b)** the owner or operator shall control VOC emissions during startup, shutdown, maintenance, or other VRU downtime with a backup control device (e.g. flare, ECD, TO) or redundant VRU during the period of VRU downtime, unless otherwise approved in an air permit issued prior to the effective date of this

Part. Alternatively, the owner or operator may shut down and isolate the source being controlled by the VRU. For sites that already have a VRU installed as of the effective date of this Part, the owner or operator shall install backup control devices or redundant VRUs within three years of the effective date of this Part.

**(2)** Monitoring Requirements:

**(a)** the owner or operator shall comply with the standards for equipment leaks in 20.2.50.116 NMAC, or alternatively, shall implement a program that meets the requirements of Subpart OOOOa of 40 CFR 60.

**(b)** prior to a VRU inspection or monitoring event, the owner or operator shall date and time stamp the event, and the required monitoring data entry shall be made in accordance with the requirements of this Part.

**(3)** Recordkeeping requirements: For a VRU inspection or monitoring event, the owner or operator shall record the result of the event, including the name of the person(s) conducting the inspection, any maintenance or repair activities required, and the date and time stamp(s), including GPS of the location, of any monitoring event. The owner or operator shall record the type of redundant control device used during VRU downtime, or keep records of the source shut down and isolated and the time period during which it was shut down, or records of compliance with an air permit issued prior to the effective date of this Part.

**(4)** Reporting requirements: The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

**F. Recordkeeping requirements:** The owner or operator of a control device or closed vent system shall maintain a record of the following:

**(1)** the certification of the closed vent system assessment, where applicable, and as required by this Part; and

**(2)** the information required in Paragraph (6) of Subsection B of 20.2.50.115 NMAC.

**G. Reporting requirements:** The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

[20.2.50.115 NM–C - N, XX/XX/2021]

**20.2.50.116 EQUIPMENT LEAKS AND FUGITIVE EMISSIONS:**

**A. Applicability:** Well sites, tank batteries, gathering and boosting stations, natural gas processing plants, transmission compressor stations, and associated piping and components are subject to the requirements of 20.2.50.116 NMAC. Components in water or air service are not subject to the requirements of 20.2.50.116 NMAC. The requirements of this Part may be considered in the facility-wide PTE and in determining the monitoring frequency requirements of this Section.

**B. Emission standards:** The owner or operator of oil and gas production and processing equipment located at well sites, tank batteries, gathering and boosting stations, natural gas processing plants, or transmission compressor stations shall demonstrate compliance with this Part by performing the monitoring, recordkeeping, and reporting requirements specified in 20.2.50.116 NMAC. Tank batteries supporting multiple facilities are subject to the requirements for the most stringently regulated facility of which they are a part.

**C. Default Monitoring requirements:** Owners and operators shall comply with the following monitoring requirements:

**(1)** The owner or operator of a facility with an annual average daily production or average daily throughput of greater than 10 barrels of oil per day or an average daily production of greater than 60,000 standard cubic feet per day of natural gas shall, at least weekly, conduct an external audio, visual, and olfactory (AVO) inspections of thief hatches, closed vent systems, pumps, compressors, pressure relief devices, open-ended valves or lines, valves, flanges, connectors, piping, and associated equipment to identify defects and leaking components as follows:

**(a)** conduct an external visual inspection for defects, which may include cracks, holes, or gaps in piping or covers; loose connections; liquid leaks; broken or missing caps; broken, cracked or otherwise damaged seals or gaskets; broken or missing hatches; or broken or open access covers or other closure or bypass devices;

**(b)** conduct an audio inspection for pressure leaks and liquid leaks;

**(c)** conduct an olfactory inspection for unusual or strong odors; and

**(d)** any positive detection during the AVO inspection shall be repaired in accordance with Subsection E if not repaired at the time of discovery.

**(2)** The owner or operator of a facility with an annual average daily production or average daily throughput of equal to or less than 10 barrels of oil per day or an average daily production of equal to or less than 60,000 standard cubic feet per day of natural gas shall, at least monthly, conduct an external audio, visual, and olfactory (AVO) inspection of thief hatches, closed vent systems, pumps, compressors, pressure relief devices, open-ended valves or lines, valves, flanges, connectors, piping, and associated equipment to identify defects and leaking components as specified in Subparagraphs (a) through (d) of Paragraph (1) of Subsection (C) of 20.2.50.116 NMAC.

**(3)** The owner or operator of the following facilities shall conduct an inspection using U.S. EPA method 21 or optical gas imaging (OGI) of thief hatches, closed vent systems, pumps, compressors, pressure relief devices, open-ended valves or lines, valves, flanges, connectors, piping, and associated equipment to identify leaking components at a frequency determined according to the following schedules, and upon request by the department for good cause shown:

**(a)** for existing well sites or tank batteries, the owner or operator shall comply with these requirements within two years of the effective date of this Part.

**(b)** for well sites and standalone tank batteries:

**(ii)** annually at facilities with a PTE less than two tpy VOC;

**(iii)** semi-annually at facilities with a PTE equal to or greater than two tpy and less than five tpy VOC; and

**(iv)** quarterly at facilities with a PTE equal to or greater than five tpy VOC.

**(c)** for gathering and boosting stations and natural gas processing plants:

**(i)** quarterly at facilities with a PTE less than 25 tpy VOC; and

**(ii)** monthly at facilities with a PTE equal to or greater than 25 tpy VOC.

**(d)** for transmission compressor stations, quarterly or in compliance with the federal equipment leak and fugitive emissions monitoring requirements of New Source Performance Standards, 40 C.F.R. Part 60, as may be revised, so long as the federal equipment leak and fugitive emissions monitoring requirements are at least as stringent as the New Source Performance Standards OOOOa, 40 CFR Part 60, in existence as of the effective date of this Part.

**(e)** for well sites within 1,000 feet of an occupied area:

**(i)** quarterly at facilities with a PTE less than 5 tpy VOC; and

**(ii)** monthly at facilities with a PTE equal to or greater than 5 tpy VOC.

**(f)** for existing wellhead only facilities, annual inspections shall be completed on the following schedule: 30% by January 1, 2024; 65% by January 1, 2025; and 100% by January 1, 2026.

**(g)** for inactive well sites:

**(i)** for well sites that are inactive on or before the effective date of this Part, annually beginning within 6 months of the effective date of this Part;

**(ii)** for well sites that become inactive after the effective date of this Part, annually beginning 30 days after the site becomes an inactive well site.

**(4)** Inspections using U.S. EPA method 21 shall meet the following requirements:

**(a)** the instrument shall be calibrated before each day of use by the procedures specified in U.S. EPA method 21 and the instrument manufacturer; and

**(b)** a leak is detected if the instrument records a measurement of 500 ppm or greater of hydrocarbons, and the measurement is not associated with normal equipment operation, such as pneumatic device actuation and crank case ventilation.

**(5)** Inspections using OGI shall meet the following requirements:

**(a)** the instrument shall comply with the specifications, daily instrument checks, and leak survey requirements set forth in Subparagraphs (1) through (3) of Paragraph (i) of 40 CFR 60.18; and

**(b)** a leak is detected if the emission images recorded by the OGI instrument are not associated with normal equipment operation, such as pneumatic device actuation or crank case ventilation.

**(6)** Components that are difficult, unsafe, or inaccessible to monitor, as determined by the following conditions, are not required to be inspected until it becomes feasible to do so:

**(a)** difficult to monitor components are those that require elevating the monitoring personnel more than two meters above a supported surface;

**(b)** unsafe to monitor components are those that cannot be monitored without exposing monitoring personnel to an immediate danger as a consequence of completing the monitoring; and

**(c)** inaccessible to monitor components are those that are buried, insulated, or obstructed by equipment or piping that prevents access to the components by monitoring personnel.

**(7)** Owners and operators of well sites subject to the requirements in Subparagraph (e) of Paragraph (3) of Subsection C of Section 20.2.50.116 NMAC must conduct an evaluation to determine applicability within 30 days of constructing a new well site, and within 90 days of the effective date of this Part for existing well sites. Homeowners may contact NMED to request an owner or operator conduct the evaluation required by this Part.

**(8)** An owner or operator conducting an evaluation pursuant to Paragraph (7) of Subsection C of Section 20.2.50.116 NMAC shall measure the distance from the latitude and longitude of each well at a well site to the following points for each type of occupied area:

**(a)** the property line for indoor or outdoor spaces associated with a school that students use commonly as part of their curriculum or extracurricular activities and outdoor venues or recreation areas;

**(b)** the property line for outdoor venues or recreation areas, such as a playground, permanent sports field, amphitheater, or other similar place of outdoor public assembly;

**(c)** the location of a building or structure used as a place of residency by a person, a family, or families; and

**(d)** the location of a commercial facility with five-thousand (5,000) or more spare feet of building floor area that is operating and normally occupied during working hours.

**(9)** Injection well sites and temporarily abandoned well sites are not subject to the leak survey requirements of Paragraphs (3) through (6) of Subsection C of 20.2.50.116 NMAC.

**(10)** Prior to any monitoring event, the owner or operator shall date and time stamp the monitoring event.

**D. Alternative equipment leak monitoring plans:** As an equivalent means of compliance with Subsection C of 20.2.50.116 NMAC, an owner or operator may comply with the equipment leak requirements through an alternative monitoring plan as follows:

**(1)** An owner or operator may comply with an individual alternative monitoring plan, subject to the following requirements:

**(a)** proposed alternative monitoring plans may utilize alternative monitoring methods.

**(~~a~~b)** the proposed alternative monitoring plan shall be submitted to and approved by the department prior to conducting monitoring under that plan.

**(~~b~~c)** the department may terminate an approved alternative monitoring plan if the department finds that the owner or operator failed to comply with a provision of the plan and failed to correct and disclose the violation to the department within 15 calendar days of identifying the violation.

**(~~c~~d)** upon department denial or termination of an approved alternative monitoring plan, the owner or operator shall comply with the default monitoring requirements of Subsection C of 20.2.50.116 NMAC within 15 days.

**(2)** An owner or operator may comply with a pre-approved monitoring plan maintained by the department, subject to the following requirements:

**(a)** the owner or operator shall notify the department of the intent to conduct monitoring under a pre-approved monitoring plan, and identify which pre-approved plan will be used, at least 15 days prior to conducting the first monitoring under that plan.

**(b)** the department may terminate the use of a pre-approved monitoring plan by the owner or operator if the department finds that the owner or operator failed to comply with a provision of the plan and failed to correct and disclose the violation to the department within 15 calendar days of identifying the violation.

**(c)** upon department denial or termination of an approved alternative monitoring plan, the owner or operator shall comply with the default monitoring requirements of Subsection C of 20.2.50.116 NMAC within 15 days.

**E. Repair requirements:** For a leak detected pursuant to monitoring conducted under 20.2.50.116 NMAC:

**(1)** the owner or operator shall place a visible tag on the leaking component not otherwise repaired at the time of discovery until the component has been repaired;

**(2)** leaks shall be repaired as soon as practicable but no later than 30 days of discovery;

**(3)** the equipment must be re-monitored no later than 15 days after the repair of the leak to demonstrate that it has been repaired; and

**(4)** if the leak cannot be repaired within 30 days of discovery without a process unit shutdown, the leak may be designated “Repair delayed,” and must be repaired before the end of the next process unit shutdown.

**(5)** if the leak cannot be repaired within 30 days of discovery due to shortage of parts, the leak may be designated “Repair delayed,” and must be repaired within 15 days of resolution of such shortage.

**F. Recordkeeping requirements:**

**(1)** The owner or operator shall keep a record of the following for all AVO, RM 21, OGI, or alternative equipment leak monitoring inspections conducted as required under 20.2.50.116 NMAC, and shall provide the record to the department upon request:

**(a)** facility location (latitude and longitude);

**(b)** time and date stamp, including GPS of the location, of any monitoring;

**(c)** monitoring method (e.g. AVO, RM 21, OGI, approved alternative method);

**(d)** name of the person(s) performing the inspection;

**(e)** a description of any leak requiring repair or a note that no leak was found; and

**(f)** whether a visible tag was placed on the leak or not;

**(2)** The owner or operator shall keep the following record for any leak that is detected:

**(a)** the date the leak is detected;

**(b)** the date of attempt to repair;

**(c)** for a leak with a designation of "repair delayed" the following shall be recorded:

**(i)** reason for delay if a leak is not repaired within the required number of days after discovery. If a delay is due to a parts shortage, a record documenting the attempt to order the parts and the unavailability due to a shortage is required; and

**(ii)** signature of the person(s) who determined that the repair could not be implemented without a process unit shutdown.

**(d)** date of successful leak repair;

**(e)** date the leak was monitored after repair and the results of the monitoring; and

**(f)** a description of the component that is designated as difficult, unsafe, or inaccessible to monitor, an explanation stating why the component was so designated, and the schedule for repairing and monitoring the component.

**(3)** For a leak detected using OGI, the owner or operator shall keep records of the specifications, the daily instrument check, and the leak survey requirements specified at 40 CFR 60.18(i)(1)-(3).

**(4)** The owner or operator shall comply with the recordkeeping requirements in 20.2.50.112 NMAC.

**G. Reporting requirements:**

**(1)** The owner or operator shall certify the use of an alternative equipment leak monitoring plan under Subsection D of 20.2.50.116 NMAC to the department annually, if used.

**(2)** The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

[20.2.50.116 NMAC - N, XX/XX/2021]

***Comment on 20.2.50.116.C(3)(e) NMAC** (highlighted above on p. 19)**:***

*The Community and Environmental Parties and Oxy support the LDAR proximity proposal. At the close of evidence on this section during the hearing, the Environment Department adopted the proximity proposal as well and proposes it for adoption by the EIB.*

*The proximity proposal requires more frequent LDAR inspections at wellsites 1,000 feet within an "occupied area" (defined at 20.2.50.7.LL NMAC), which generally include homes, businesses, schools, and parks. The proposal requires quarterly inspections for facilities with PTE of less than 5 tpy VOC and monthly inspections for facilities with PTE equal to or greater than 5 tpy VOC.*

*The proposal is beneficial for several reasons:*

1. *The proximity proposal will reduce volatile organic compounds that contribute to ozone pollution, thereby helping New Mexico protect clean air and remain in attainment with the National Ambient Air Quality Standards for Ozone. EDF Ex. TT at 3.*
2. *The proximity proposal results in the co-benefits of reducing methane and HAPs emissions. 8 Tr. 2593:21-23; EDF Ex. SS at 11.*
3. *Air pollutants hazardous to human health, the environment, and the climate — including greenhouse gases, hazardous air pollutants, and criteria air pollutants — are emitted from upstream oil and gas development sites. CCA Ex. 25 at 1.*

*4. There is a reasonable degree of scientific certainty that living in close proximity to oil and gas facilities results in increased health risks and impacts from elevated air pollution levels and that these health risks are increasingly attenuated further from these operations. CAA Ex. 25 at 2, 11.*
*5. The proximity proposal will protect the health of vulnerable persons living near oil and gas facilities. EDF estimates that the proposal will protect the health of over 35,000 New Mexicans living within 1,000 feet of a wellsite. EDF Ex. SS at 15.*
*6. The proximity proposal's LDAR requirements are highly cost effective when calculating the compliance costs divided by the VOC reductions. EDF analysis and a comparison of the cost effectiveness of the proximity proposal to similar inspection requirements adopted by other air quality agencies support the cost effectiveness of the proposal. 10 Tr. 3214:19-22.*

**20.2.50.117 NATURAL GAS WELL LIQUID UNLOADING:**

**A. Applicability:** Liquid unloading operations resulting in the venting of natural gas at natural gas wells are subject to the requirements of 20.2.50.117 NMAC. Liquid unloading operations that do not result in the venting of any natural gas are not subject to this Part. Owners and operators of a natural gas well subject to this Part must comply with the standards set forth in Paragraph (3) of Subsection B of 20.2.50.117 NMAC within two years of the effective date of this Part.

**B. Emission standards:**

**(1)** The owner or operator of a natural gas well shall use at least one of the following best management practices during the life of the well to avoid the need for venting of natural gas associated with liquid unloading:

**(a)** use of a plunger lift;
**(b)** use of artificial lift;
**(c)** use of a control device;
**(d)** use of an automated control system; or
**(e)** other control if approved by the department

**(2)** The owner or operator of a natural gas well shall use the following best management practices during venting associated with liquid unloading to minimize emissions, consistent with well site conditions and good engineering practices:

**(a)** reduce wellhead pressure before blowdown or venting to atmosphere;
**(b)** monitor manual venting associated with liquid unloading in close proximity to the well or via remote telemetry; and
**(c)** close vents to the atmosphere and return the well to normal production operation as soon as practicable.

**C. Monitoring requirements:**

**(1)** The owner or operator shall monitor the following parameters during venting associated with liquid unloading:

**(a)** wellhead pressure;
**(b)** flow rate of the vented natural gas (to the extent feasible); and
**(c)** duration of venting to the storage vessel, tank battery, or atmosphere.

**(2)** The owner or operator shall calculate the volume and mass of VOC emitted during a venting event associated with a liquid unloading event.

**(3)** The owner or operator shall comply with the monitoring requirements of 20.2.50.112 NMAC.

**D. Recordkeeping requirements:**

**(1)** The owner or operator shall keep the following records for liquid unloading:

**(a)** unique identification number and location (latitude and longitude) of the well;
**(b)** date of the unloading event;
**(c)** wellhead pressure;
**(d)** flow rate of the vented natural gas (to the extent feasible. If not feasible, the owner or operator shall use the maximum potential flow rate in the emission calculation);
**(e)** duration of venting to the storage vessel, tank battery, or atmosphere;
**(f)** a description of the management practice used to minimize venting of VOC emissions before and during the liquid unloading;
**(g)** the type of control device or control technique used to control VOC emissions during venting associated with the liquid unloading event; and

**(h)** a calculation of the VOC emissions vented during a liquid unloading event based on the duration, calculated volume, and composition of the produced gas.

**(2)** The owner or operator shall comply with the recordkeeping requirements in 20.2.50.112 NMAC.

**E.** **Reporting requirements:** The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

[20.2.50.117 NMAC - N, XX/XX/2021]

**20.2.50.118 GLYCOL DEHYDRATORS:**

**A.** **Applicability:** Glycol dehydrators with a PTE equal to or greater than two tpy of VOC and located at well sites, tank batteries, gathering and boosting stations, natural gas processing plants, and transmission compressor stations are subject to the requirements of 20.2.50.118 NMAC.

**B.** **Emission standards:**

**(1)** Existing glycol dehydrators with a PTE equal to or greater than two tpy of VOC shall achieve a minimum combined capture and control efficiency of ninety-five percent of VOC emissions from the still vent and flash tank (if present) no later than two years after the effective date of this Part. If a combustion control device is used, the combustion control device shall have a minimum design combustion efficiency of ninety-eight percent.

**(2)** New glycol dehydrators with a PTE equal to or greater than two tpy of VOC shall achieve a minimum combined capture and control efficiency of ninety-five percent of VOC emissions from the still vent and flash tank (if present) upon startup. If a combustion control device is used, the combustion control device shall have a minimum design combustion efficiency of ninety-eight percent.

**(3)** The owner or operator of a glycol dehydrator shall comply with the following requirements:

**(a)** still vent and flash tank emissions shall be routed at all times to the reboiler firebox, condenser, combustion control device, fuel cell, to a process point that either recycles or recompresses the emissions or uses the emissions as fuel, or to a VRU that reinjects the VOC emissions back into the process stream or natural gas pipeline;

**(b)** if a VRU is used, it shall consist of a closed loop system of seals, ducts, and a compressor that reinjects the vapor into the process or the natural gas pipeline. The VRU shall be operational at least ninety-five percent of the time the facility is in operation, resulting in a minimum combined capture and control efficiency of ninety-five percent. The VRU shall be installed, operated, and maintained according to the manufacturer's specifications; and

**(c)** still vent and flash tank emissions shall not be vented directly to the atmosphere during normal operation.

**(4)** an owner or operator complying with the requirements in Subsection B of 20.2.50.118 NMAC through use of a control device shall comply with the requirements in 20.2.50.115 NMAC.

**(5)** The requirements of Subsection B of 20.2.50.118 NMAC cease to apply when the actual annual VOC emissions from a new or existing glycol dehydrator are less than two tpy VOC.

**C.** **Monitoring requirements:**

**(1)** The owner or operator of a glycol dehydrator shall conduct an annual extended gas analysis on the dehydrator inlet gas and calculate the uncontrolled and controlled VOC emissions in tpy.

**(2)** The owner or operator of a glycol dehydrator shall inspect the glycol dehydrator, including the reboiler and regenerator, and the control device or process the emissions are being routed, semi-annually to ensure it is operating as initially designed and in accordance with the manufacturer recommended operation and maintenance schedule.

**(3)** Prior to any monitoring event, the owner or operator shall date and time stamp the event, and the monitoring data entry shall be made in accordance with the requirements of this Part.

**(4)** An owner or operator complying with the requirements in Subsection B of 20.2.50.118 NMAC through the use of a control device shall comply with the monitoring requirements in 20.2.50.115 NMAC.

**(5)** Owners and operators shall comply with the monitoring requirements in 20.2.50.112 NMAC.

**D.** **Recordkeeping requirements:**

**(1)** The owner or operator of a glycol dehydrator shall maintain a record of the following:

**(a)** unique identification number and dehydrator location (latitude and longitude);

**(b)** glycol circulation rate, monthly natural gas throughput, and the date of the most recent throughput measurement;

**(c)** data and methodology used to estimate the PTE of VOC (must be a department approved calculation methodology);

**(d)** controlled and uncontrolled VOC emissions in tpy;

**(e)** type, make, model, and unique identification number of the control device or process the emissions are being routed;

**(f)** time and date stamp, including GPS of the location, of any monitoring;

**(g)** results of any equipment inspection, including maintenance or repair activities required to bring the glycol dehydrator into compliance; and

**(h)** a copy of the glycol dehydrator manufacturer specifications.

**(2)** An owner or operator complying with the requirements in Paragraph (1) or (2) of Subsection B of 20.2.50.118 NMAC through use of a control device as defined in this Part shall comply with the recordkeeping requirements in 20.2.50.115 NMAC.

**(3)** The owner or operator shall comply with the recordkeeping requirements in 20.2.50.112 NMAC.

**E. Reporting requirements:** The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

[20.2.50.118 NMAC - N, XX/XX/2021]

**20.2.50.119 HEATERS:**

**A. Applicability:** Natural gas-fired heaters with a rated heat input equal to or greater than 20 MMBtu/hour including heater treaters, heated flash separators, evaporator units, fractionation column heaters, and glycol dehydrator reboilers in use at well sites, tank batteries, gathering and boosting stations, natural gas processing plants, and transmission compressor stations are subject to the requirements of 20.2.50.119 NMAC.

**B. Emission standards:**

**(1)** Natural gas-fired heaters shall comply with the emission limits in table 1 of 20.2.50.119 NMAC.

Table 1 - EMISSION STANDARDS FOR $NO_x$ AND CO

| Date of Construction: | $NO_x$ (ppmvd @ 3% $O_2$) | CO (ppmvd @ 3% $O_2$) |
|---|---|---|
| Constructed or reconstructed before the effective date of 20.2.50 NMAC | 30 | 400 |
| Constructed or reconstructed on or after the effective date of 20.2.50 NMAC | 30 | 400 |

**(2)** Existing natural gas-fired heaters shall comply with the requirements of 20.2.50.119 NMAC no later than three years after the effective date of this Part.

**(3)** New natural gas-fired heaters shall comply with the requirements of 20.2.50.119 NMAC upon startup.

**C. Monitoring requirements:**

**(1)** The owner or operator shall:

**(a)** conduct emission testing for NOx and CO within 180 days of the compliance date specified in Paragraph (2) or (3) of Subsection B of 20.2.50.119 NMAC and at least every two years thereafter.

**(b)** inspect, maintain, and repair the heater in accordance with the manufacturer specifications at least once every two years following the applicable compliance date specified in 20.2.50.119 NMAC. The inspection, maintenance, and repair shall include the following:

**(i)** inspecting the burner and cleaning or replacing components of the burner as necessary;

**(ii)** inspecting the flame pattern and adjusting the burner as necessary to optimize the flame pattern consistent with the manufacturer specifications;

**(iii)** inspecting the AFR controller and ensuring it is calibrated and functioning properly, if present;

**(iv)** optimizing total emissions of CO consistent with the $NO_x$ requirement and manufacturer specifications, and good combustion practices; and

**(v)** measuring the concentrations in the effluent stream of CO in ppmvd and $O_2$ in volume percent before and after adjustments are made in accordance with Subparagraph (c) of Paragraph (2) of Subsection C of 20.2.50.119 NMAC.

**(2)** The owner or operator shall comply with the following periodic testing requirements:

**(a)** conduct three test runs of at least 20-minutes duration within ten percent of one-hundred percent peak, or the highest achievable, load;

**(b)** determine $NO_X$ and CO emissions and $O_2$ concentrations in the exhaust with a portable analyzer used and maintained in accordance with the manufacturer specifications and following the procedures specified in the current version of ASTM D6522;

**(c)** if the measured $NO_X$ or CO emissions concentrations are exceeding the emissions limits of table 1 of 20.2.50.119 NMAC, the owner or operator shall repeat the inspection and tune-up in Subparagraph (b) of Paragraph (1) of Subsection C of 20.2.50.119 NMAC within 30 days of the periodic testing; and

**(d)** if at any time the heater is operated in excess of the highest achievable load in a prior test plus ten percent, the owner or operator shall perform the testing specified in Subparagraph (a) of Paragraph (2) of Subsection C of 20.2.50.119 NMAC within 60 days from the anomalous operation.

**(3)** When conducting periodic testing of a heater, the owner or operator shall follow the procedures in Paragraph (2) of Subsection C of 20.2.50.119 NMAC. An owner or operator may deviate from those procedures by submitting a written request to use an alternative procedure to the department at least 60 days before performing the periodic testing. In the alternative procedure request, the owner or operator must demonstrate the alternative procedure's equivalence to the standard procedure. The owner or operator must receive written approval from the department prior to conducting the periodic testing using an alternative procedure.

**(4)** Prior to a monitoring event, the owner or operator shall date and time stamp the event, and the required monitoring data entry shall be made in accordance with this Part.

**(5)** The owner or operator shall comply with the monitoring requirements of 20.2.50.112 NMAC.

**D.** **Recordkeeping requirements:** The owner or operator shall maintain a record of the following:

**(1)** unique identification number and location (latitude and longitude) of the heater;

**(2)** summary of the complete test report and the results of periodic testing; and

**(3)** inspections, testing, maintenance, and repairs, which shall include at a minimum:

**(a)** the date and time stamp, including GPS of the location, of the inspection, testing, maintenance, or repair conducted;

**(b)** name of the person(s) conducting the inspection, testing, maintenance, or repair;

**(c)** concentrations in the effluent stream of CO in ppmv and $O_2$ in volume percent; and

**(d)** the results of the inspections and any the corrective action taken.

**(4)** The owner or operator shall comply with the recordkeeping requirements in 20.2.50.112 NMAC.

**E.** **Reporting requirements:** The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

[20.2.50.119 NMAC - N, XX/XX/2021]

**20.2.50.120 HYDROCARBON LIQUID TRANSFERS:**

**A.** **Applicability:** Hydrocarbon liquid transfers located at existing well sites, tank batteries, gathering and boosting stations, natural gas processing plants, or transmission compressor stations are subject to the requirements of 20.2.50.120 NMAC within two years of the effective date of this Part. Hydrocarbon liquid transfers located at new well sites, tank batteries, gathering and boosting stations, natural gas processing plants, or transmission compressor stations are subject to the requirements of 20.2.50.120 NMAC upon startup. Any facility connected to oil sales pipelines that are routinely used for hydrocarbon liquid transfers are not subject to the requirements of 20.2.50.120 NMAC. Well sites, tank batteries, gathering and boosting stations, natural gas processing plants, or transmission compressor stations that load out hydrocarbon liquids to trucks fewer than thirteen (13) times in a calendar year are not subject to 20.2.50.120 NMAC. When transferring hydrocarbon liquid from a transfer vessel to a storage vessel subject to the emission standards in 20.2.50.123 NMAC, no requirements under this Section apply.

**B.** **Emission standards:**

**(1)** The owner or operator of a hydrocarbon liquid transfer operation shall use vapor balance, vapor recovery, or a control device to control VOC emissions by at least ninety-five percent, when transferring hydrocarbon liquid from a storage vessel to a tanker truck or tanker railcar for transport. If a combustion control device is used, the combustion device shall have a minimum design combustion efficiency of ninety-eight percent.

**(2)** An owner, operator, or personnel conducting the hydrocarbon liquid transfer using vapor balance shall:

**(a)** transfer the vapor displaced from the transfer truck or railcar being loaded back to the storage vessel being emptied via a pipe or hose connected before the start of the transfer operation. If multiple storage vessels are manifolded together in a tank battery, the vapor may be routed back to any storage vessel in the tank battery;

**(b)** ensure that the transfer does not begin until the vapor collection and return system is properly connected;

**(c)** inspect connector pipes, hoses, couplers, valves, and pressure relief devices for leaks;

**(d)** check the hydrocarbon liquid and vapor line connections for proper connections before commencing the transfer operation; and

**(e)** operate transfer equipment at a pressure that is less than the pressure relief valve setting of the receiving transport vehicle or storage vessel.

**(3)** Connector pipes and couplers shall be inspected and maintained in a leak-free condition.

**(4)** Connections of hoses and pipes used during hydrocarbon liquid transfers shall be supported on drip trays that collect any leaks, and the materials collected shall be returned to the process or disposed of in a manner compliant with state law.

**(5)** Liquid leaks that occur shall be cleaned and disposed of in a manner that minimizes emissions to the atmosphere, and the material collected shall be returned to the process or disposed of in a manner compliant with state law.

**(6)** An owner or operator complying with Paragraph (1) of Subsection B of 20.2.50.120 NMAC through use of a control device shall comply with the control device requirements in 20.2.50.115 NMAC.

**C. Monitoring requirements:**

**(1)** The owner, operator, or their designated representative shall visually inspect the hydrocarbon liquid transfer equipment monthly at staffed locations and semi-annually at unstaffed locations to ensure that hydrocarbon liquid transfer lines, hoses, couplings, valves, and pipes are not dripping or leaking. At least once per calendar year, the inspection shall occur during a transfer operation. Leaking components shall be repaired to prevent dripping or leaking before the next transfer operation, or measures must be implemented to mitigate leaks until the necessary repairs are completed.

**(2)** The owner or operator of a hydrocarbon liquid transfer operation controlled by a control device must follow manufacturer recommended operation and maintenance procedures for the device.

**(3)** Owners and operators complying with Paragraph (1) of Subsection B of 20.2.50.120 NMAC through use of a control device shall comply with the monitoring requirements in 20.2.50.115 NMAC.

**(4)** Prior to any monitoring event, the owner or operator shall date and time stamp the event, and the monitoring data entry shall be made in accordance with the requirements of this Part.

**(5)** The owner or operator shall comply with the monitoring requirements in 20.2.50.112 NMAC.

**D. Recordkeeping requirements:**

**(1)** The owner or operator shall maintain a record of the following:

**(a)** the location of the facility;

**(b)** if using a control device, the type, make, and model of the control device;

**(c)** the date and time stamp, including GPS of the location, of any inspection;

**(d)** the name of the person(s) conducting the inspection;

**(e)** a description of any problem observed during the inspection; and

**(f)** the results of the inspection and a description of any repair or corrective action taken.

**(2)** The owner or operator shall maintain a record for each site of the annual total hydrocarbon liquid transferred and annual total VOC emissions. Each calendar year, the owner or operator shall create a company-wide record summarizing the annual total hydrocarbon liquid transferred and the annual total calculated VOC emissions.

**(3)** The owner or operator shall comply with the recordkeeping requirements in 20.2.50.112 NMAC.

**E. Reporting requirements:** The owner or operator shall comply with the reporting requirements in

20.2.50.112 NMAC.
[20.2.50.120 NMAC - N, XX/XX/2021]

**20.2.50.121 PIG LAUNCHING AND RECEIVING:**

**A. Applicability:** Individual pipeline pig launcher and receiver operations with a PTE equal to or greater than one tpy VOC located within the property boundary of, and under common ownership or control with, well sites, tank batteries, gathering and boosting stations, natural gas processing plants, and transmission compressor stations are subject to the requirements of 20.2.50.121 NMAC.

**B. Emission standards:**

**(1)** Owners and operators of affected pipeline pig launcher and receiver operations shall capture and reduce VOC emissions from pigging operations by at least ninety-five percent within two years of the effective date of this Part. If a combustion control device is used, the combustion device shall have a minimum design combustion efficiency of ninety-eight percent.

**(2)** The owner or operator conducting an affected pig launching and receiving operation shall:

**(a)** employ best management practices to minimize the liquid present in the pig receiver chamber and to minimize emissions from the pig receiver chamber to the atmosphere after receiving the pig in the receiving chamber and before opening the receiving chamber to the atmosphere;

**(b)** employ a method to prevent emissions, such as installing a liquid ramp or drain, routing a high-pressure chamber to a low-pressure line or vessel, using a ball valve type chamber, or using multiple pig chambers;

**(c)** recover and dispose of receiver liquid in a manner that minimizes emissions to the atmosphere to the extent practicable; and

**(d)** ensure that the material collected is returned to the process or disposed of in a manner compliant with state law.

**(3)** The emission standards in Paragraphs (1) and (2) of Subsection B of 20.2.50.121 NMAC cease to apply to an individual pipeline pig launching and receiving operation if the actual annual VOC emissions of the launcher or receiver operation are less than one tpy of VOC.

**(4)** An owner or operator complying with Paragraph (2) of Subsection B of 20.2.50.121 NMAC through use of a control device shall comply with the control device requirements in 20.2.50.115 NMAC.

**C. Monitoring requirements:**

**(1)** The owner or operator of an affected pig launching and receiving site shall inspect the equipment for leaks using AVO, RM 21, or OGI on either:

**(a)** a monthly basis if pigging operations at a site occur on a monthly basis or more frequently; or

**(b)** prior to the commencement and after the conclusion of the pig launching or receiving operation, if less frequent.

**(2)** The monitoring shall be performed using the methodologies outlined in Subsection (C) of 20.2.50.116 NMAC as applicable and at the frequency required in Paragraph (1) of Subsection (C) of 20.2.50.121 NMAC. The monitoring shall be performed when the pig trap is under pressure.

**(3)** An owner or operator complying with Paragraph (1) of Subsection B of 20.2.50.121 NMAC through use of a control device shall comply with the monitoring requirements in 20.2.50.115 NMAC.

**(4)** The owner or operator shall comply with the monitoring requirements in 20.2.50.112 NMAC.

**D. Recordkeeping requirements:**

**(1)** The owner or operator of an affected pig launching and receiving site shall maintain a record of the following:

**(a)** the pigging operation, including the location, date, and time of the pigging operation;

**(b)** the data and methodology used to estimate the actual emissions to the atmosphere and used to estimate the PTE;

**(c)** date and time of any monitoring and the results of the monitoring; and

**(d)** the type of control device and its make and model.

**(2)** The owner or operator shall comply with the recordkeeping requirements in 20.2.50.112 NMAC.

**E. Reporting requirements:** The owner or operator shall comply with the reporting requirements in

20.2.50.112 NMAC.
[20.2.50.121 NMAC - N, XX/XX/2021]

**20.2.50.122 PNEUMATIC CONTROLLERS AND PUMPS:**
**A. Applicability:** Natural gas-driven pneumatic controllers and pumps located at well sites, tank batteries, gathering and boosting stations, natural gas processing plants, and transmission compressor stations are subject to the requirements of 20.2.50.122 NMAC.
**B. Emission standards:**
**(1)** A new natural gas-driven pneumatic controller or pump shall comply with the requirements of 20.2.50.122 NMAC upon startup.
**(2)** An existing natural gas-driven pneumatic pump shall comply with the requirements of 20.2.50.122 NMAC within three years of the effective date of this Part.
**(3)** An existing natural gas-driven pneumatic controller at a site with access to commercial line electrical power, and any existing natural-gas driven pneumatic controller at a transmission compressor station or a natural gas processing plant, shall comply with this Section within six months of the effective date of this Part.

***Comment on 20.2.50.122(B)(3) NMAC:***

*It has long been recognized that it is simpler, easier, and less expensive to convert sites with electricity to non-emitting controllers. CAA Ex. 23 at 19. There is precedent for requiring a very rapid phase-out of polluting pneumatic devices at larger facilities with access to grid electric power. In December 2017, Colorado required operators of gas processing plants in the Front Range Nonattainment Area to convert to non-emitting pneumatic controllers by May 1, 2018 (i.e., within six months). CAA Ex. 3 at 16–17. The EIB should follow this precedent and require a similarly rapid phase out at sites in New Mexico with access to commercial line electric power.*

**(4)** At sites that do not have access to commercial line electrical power, owners and operators shall retrofit their fleet of existing natural gas-driven pneumatic controllers according to the following schedule:~~shall comply with the requirements of 20.2.50.122 NMAC according to the following schedule:~~

TABLE 1. REQUIREMENTS FOR EXISTING NATURAL GAS-DRIVEN PNEUMATIC CONTROLLERS

| **Total Historic Percentage of Non-Emitting Controllers** | **Additional Percentage Required by May 1, 2023** | **Maximum Percentage Required by May 1, 2023** | **Additional Percentage Required by May 1, 2025** | **Maximum Percentage Required by May 1, 2025** |
|---|---|---|---|---|
| **> 75 %** | **+15%** | **97%** | **+5%** | **98%** |
| **> 60-75%** | **+20%** | **90%** | **+10%** | **98%** |
| **> 40-60 %** | **+25%** | **75%** | **+20%** | **95%** |
| **> 20-40 %** | **+35%** | **65%** | **+25%** | **90%** |
| **0-20 %** | **+40%** | **55%** | **+35%** | **90%** |

~~Table 1 WELL SITES, STAND ALONE TANK BATTERIES, GATHERING AND BOOSTING STATIONS~~

| ~~Total Historic Percentage of Non-Emitting Controllers~~ | ~~Total Required Percentage of Non-Emitting Controllers by January 1, 2024~~ | ~~Total Required Percentage of Non-Emitting Controllers by January 1, 2027~~ | ~~Total Required Percentage of Non-Emitting Controllers by January 1, 2030~~ |
|---|---|---|---|
| ~~> 75%~~ | ~~80%~~ | ~~85%~~ | ~~90%~~ |
| ~~> 60-75%~~ | ~~80%~~ | ~~85%~~ | ~~90%~~ |
| ~~> 40-60%~~ | ~~65%~~ | ~~70%~~ | ~~80%~~ |
| ~~> 20-40%~~ | ~~45%~~ | ~~70%~~ | ~~80%~~ |
| ~~0-20%~~ | ~~25%~~ | ~~65%~~ | ~~80%~~ |

~~Table 2 – TRANSMISSION COMPRESSOR STATIONS AND GAS PROCESSING PLANTS~~

| ~~Total Historic Percentage of Non-Emitting Controllers~~ | ~~Total Required Percentage of Non-Emitting Controllers by January 1, 2024~~ | ~~Total Required Percentage of Non-Emitting Controllers by January 1, 2027~~ | ~~Total Required Percentage of Non-Emitting Controllers by January 1, 2030~~ |
|---|---|---|---|
| ~~> 75%~~ | ~~80%~~ | ~~95%~~ | ~~98%~~ |
| ~~> 60-75%~~ | ~~80%~~ | ~~95%~~ | ~~98%~~ |
| ~~> 40-60%~~ | ~~65%~~ | ~~95%~~ | ~~98%~~ |
| ~~> 20-40%~~ | ~~50%~~ | ~~95%~~ | ~~98%~~ |
| ~~0-20%~~ | ~~35%~~ | ~~95%~~ | ~~98%~~ |

***Comment on 20.2.50.122(B)(4) NMAC:***

*Table 1 is modified to require a more rapid phase out, with a slightly different structure. The Community and Enviromental Parties propose to accelerate the transition to zero-emitting controllers to ensure that New Mexico is not needlessly delaying the important environmental benefits. In 2020, Colorado's Air Quality Control Commission adopted regulations that require operators to retrofit a substantial portion of their polluting pneumatic controllers by May 2023. CAA Ex. 3 at 11–12. For example, Colorado's rule would require a compressor station operator with a historic percentage of non-emitting controllers of 0 to 20% to retrofit 20% of its polluting controllers by May 2022, an additional 25% of its controllers by May 2023. CAA Ex. 3 at 12–13. Colorado's rule was adopted unanimously, with support from the oil-and-gas industry. Id.*

*The Environment Department's proposal is similar to Colorado's rule, but provides for a much slower transition to zero-emission devices To give an example, a Colorado operator of natural gas gathering compressor stations that currently has no non-emitting controllers would have to convert 45% of its controllers at those stations by May 2023. Under NMED's proposal, such an operator would only be required to convert 25% of its controllers by 2024, and would not be required to match the Colorado requirement until January 2027. CAA Ex. 23 at 4.*

*The Community and Parties' proposal would accelerate the compliance timeline, while setting two deadlines (May 1, 2023 and May 1, 2025) instead of three deadlines in the Environment Department's proposal (January 1, 2024, January 1, 2027, and January 1, 2030). See CAA Ex. 3 at 15. The proposal still provides more time from the start of the rule than the Colorado rule.*

*The weight of the evidence shows that accelerating the transition to zero-emission pneumatics will have tremendous public health benefits. Pneumatic controllers are one of the largest sources of VOC and methane emissions in New Mexico. Clean Air Task Force estimates that there are over 118,000 pneumatic controllers in New Mexico that collectively emit 30,000 metric tons of VOC per year and 108,000 metric tons of methane. CAA Ex. 3 at 7–8. Because these devices emit so much pollution each year, the speed with which the phase out occurs has major implications for public health and the environment. Each additional year of delay means thousands of additional tons of VOCs and tens of thousands of additional tons of methane will be emitted. Id. at 21. The impacts of this pollution are irreversible.*

*The weight of the evidence indicates that the accelerated phase out proposed by Environmental Parties is achievable at reasonable cost. The required pace of retrofits under the program would still be very reasonable and similar to that required in Colorado. This accelerated schedule would therefore not increase overall costs in any significant way; at most, it would require owners and operators to incur some of these costs sooner than they otherwise might (while also increasing cumulative environmental benefits and ensuring that these benefits accrue sooner). CAA Ex. 3 at 25. Notably, no party submitted analysis indicating that the total cost of the retrofit program increases if retrofits occur in earlier years. CAA Ex. 23 at 6.*

*The Community and Environmental Parties propose a change to the structure of the phase-out table. Specifically, the Parties propose that operators be required to achieve a fixed increase in the percentage of non-emitting controllers, rather than reaching a fixed end point. This makes the rule more effective, more equitable, and less arbitrary, and is consistent with the structure of the rule in Colorado. CAA Ex. 3 at 2, 18. No party put forward* *evidence opposing this change. Accordingly, EIB should adopt this change.*

*Table 2 is not needed, because all Transmission Compressor Stations and Gas Processing Plants have access to commercial line electric power and can convert within six months. See CAA Ex. 3 at 16.*

**(5)** Standards for natural gas-driven pneumatic controllers.

**(a)** new pneumatic controllers shall have an emission rate of zero.

**(b)** existing pneumatic controllers at sites with access to commercial line electrical power, and any existing pneumatic controller at a transmission compressor station or a natural gas processing plant, shall have an emission rate of zero.

**(~~b~~c)** At sites without access to commercial line electric power, existing pneumatic controllers shall meet the required percentage of non-emitting controllers within the deadlines in table~~s~~ 1 ~~and 2~~ of Paragraph (~~3~~4) of Subsection B of 20.2.50.122 NMAC, and shall comply with the following:

**(i)** by January 1, 2023, the owner or operator shall determine the total controller count for all controllers at all of the owner or operator's affected facilities that commenced construction before the effective date of this Part. The total controller count must include all emitting pneumatic controllers and all non-emitting pneumatic controllers, except that pneumatic controllers ~~necessary for a safety or process purpose that cannot otherwise be met without emitting natural gas~~ that are permitted under Subparagraph (d) of Paragrapjh (4) of Subsection B of 20.2.50.122 NMAC shall not be included in the total controller count.

**(ii)** determine which controllers in the total controller count are non-emitting and sum the total number of non-emitting controllers and designate those as total historic non-emitting controllers.

**(iii)** determine the total historic non-emitting percent of controllers by dividing the total historic non-emitting controller count by the total controller count and multiplying by 100.

**(iv)** based on the percent calculated in (iii) above, the owner or operator shall determine which provisions of table~~s~~ 1 ~~and 2~~ of Paragraph (~~4~~3) of Subsection B of 20.2.50.122 NMAC apply and the replacement schedule the owner or operator must meet.

~~**(v)** if an owner or operator meets at least seventy-five percent total non-emitting controllers by January 1, 2025, the owner or operator is not subject to the requirements of tables 1 and 2 of Paragraph (3) of Subsection B of 20.2.50.122 NMAC.~~

***Comment:*** *The proposed exemption makes the rule less effective because it could result in a large number of pneumatic devices not being converted, even where it would be technically feasible and cost-effective to do so. CAA Ex. 3 at 26. The Environment Department has not set forth any technical or economic basis for this exemption. The Environment Department's analysis shows that is technically feasible to retrofit emitting controllers with zero-emission controllers and that the cost per ton of VOCs abated is reasonable. The incremental benefits of an additional retrofit are the same regardless of what the operator's historic percentage is.*

~~**(vi)** if after January 1, 2027, an owner or operator's remaining pneumatic controllers are not cost-effective to retrofit, the owner or operator may submit a cost analysis of retrofitting those remaining units to the department. The department shall review the cost analysis and determine whether those units qualify for a waiver from meeting additional retrofit requirements.~~

**(~~c~~d)** a pneumatic controller with a bleed rate greater than ~~six standard cubic feet per hour~~zero is permitted when the owner or operator has demonstrated that a higher bleed rate is required based on functional needs, including response time, safety, and positive actuation. An owner or operator that seeks to maintain operation of an emitting pneumatic controller must prepare and document the justification for the safety or process purpose prior to the installation of a new emitting controller or the retrofit of an existing controller. The justification shall be certified by a qualified professional or inhouse engineer.

**(~~d~~e)** Temporary pneumatic controllers that emit natural gas and are used for well abandonment activities or used prior to or through the end of flowback, and pneumatic controllers used as emergency shutdown devices located at a well site, are not subject to the requirements of Subsection B of 20.2.50.122 NMAC.

**(~~e~~f)** Temporary or portable pneumatic controllers that emit natural gas and are on-site for less than 90 days are not subject to the requirements of Subsection B of 20.2.50.122 NMAC.

**(5)** Standards for natural gas-driven pneumatic diaphragm pumps.

**(a)** new pneumatic diaphragm pumps located at natural gas processing plants shall have an emission rate of zero.

**(b)** new pneumatic diaphragm pumps located at well sites, tank batteries, gathering and boosting stations, or transmission compressor stations with access to commercial line electrical power shall have an emission rate of zero.

**(c)** existing pneumatic diaphragm pumps located at well sites, tank batteries, gathering and boosting stations, natural gas processing plants, or transmission compressor stations with access to commercial line electrical power shall have an emission rate of zero within two years of the effective date of this Part.

**(~~d~~g)** owners and operators of pneumatic diaphragm pumps located at well sites, tank batteries, gathering and boosting stations, or transmission compressor stations without access to commercial line electrical power shall reduce VOC emissions from the pneumatic diaphragm pumps by ninety-five percent if it is technically feasible to route emissions to a control device, fuel cell, or process. If there is a control device available onsite but it is unable to achieve a ninety-five percent emission reduction, and it is not technically feasible to route the pneumatic diaphragm pump emissions to a fuel cell or process, the owner or operator shall route the pneumatic diaphragm pump emissions to the control device within two years of the effective date of this Part.

**C. Monitoring requirements:**

**(1)** Pneumatic controllers or diaphragm pumps not using natural gas or other hydrocarbon gas as a motive force are not subject to the monitoring requirements in Subsection C of 20.2.50.122 NMAC.

**(2)** The owner or operator of a facility with one or more natural gas-driven pneumatic controllers subject to the deadlines set forth in table~~s~~ 1 ~~and 2~~ of Paragraph (~~3~~4) of Subsection B of 20.2.50.122 NMAC shall monitor the compliance status of each subject pneumatic controller at each facility.

**(3)** The owner or operator of a natural gas-driven pneumatic controller shall, on a monthly basis, conduct an AVO or OGI inspection, and shall also inspect the pneumatic controller, perform necessary maintenance (such as cleaning, tuning, and repairing a leaking gasket, tubing fitting and seal; tuning to operate over a broader range of proportional band; eliminating an unnecessary valve positioner), and maintain the pneumatic controller according to manufacturer specifications to ensure that the VOC emissions are minimized.

**(4)** The owner or operator's database shall contain the following:

**(a)** natural gas-driven pneumatic controller unique identification number;

**(b)** type of controller (continuous or intermittent);

**(c)** if continuous, design continuous bleed rate in standard cubic feet per hour;

**(d)** if intermittent, bleed volume per intermittent bleed in standard cubic feet; and

**(e)** if continuous, design annual bleed rate in standard cubic feet per year.

**(5)** The owner or operator of a natural gas-driven pneumatic diaphragm pump shall, on a monthly basis, conduct an AVO or OGI inspection and shall also inspect the pneumatic pump and perform necessary maintenance, and maintain the pneumatic pump according to manufacturer specifications to ensure that the VOC emissions are minimized.

**(6)** The owner or operator of a natural gas-driven pneumatic controller shall comply with the requirements in Paragraph (3) of Subsection C or Subsection D of 20.2.50.116 NMAC. During instrument inspections, operators shall use RM 21, OGI, or alternative instruments used under Subsection D of 20.2.50.116 NMAC to verify that intermittent controllers are not emitting when not actuating. Any intermittent controller emitting when not actuating shall be repaired consistent with Subsection E of 20.2.50.116 NMAC.

**(7)** Prior to any monitoring event, the owner or operator shall date and time stamp the event, and the monitoring data entry shall be made in accordance with the requirements of this Part.

**(8)** The owner or operator shall comply with the monitoring requirements in 20.2.50.112 NMAC.

**D. Recordkeeping requirements:**

**(1)** Non-emitting pneumatic controllers and diaphragm pumps are not subject to the recordkeeping requirements in Subsection D of 20.2.50.122 NMAC.

**(2)** The owner or operator shall maintain a record of the total controller count for all controllers at all of the owner or operator's affected facilities that commenced operation before the effective date of this Part. The total controller count must include all emitting and non-emitting pneumatic controllers.

**(3)** The owner or operator shall maintain a record of the total count of natural gas-driven pneumatic controllers necessary for a safety or process purpose that cannot otherwise be met without emitting VOC.

**(4)** The owner or operator of a natural gas-driven pneumatic controller subject to the requirements in table~~s~~ 1~~ and 2~~ of Paragraph (3) of Subsection B of 20.2.50.122 NMAC shall generate a schedule for meeting the compliance deadlines for each pneumatic controller. The owner or operator shall keep a record of the compliance status of each subject controller.

**(5)** The owner or operator shall maintain an electronic record for each natural gas-driven pneumatic controller. The record shall include the following:

**(a)** pneumatic controller unique identification number;

**(b)** time and date stamp, including GPS of the location, of any monitoring;

**(c)** name of the person(s) conducting the inspection;

**(d)** AVO or OGI inspection result;

**(e)** AVO or OGI level discrepancy in continuous or intermittent bleed rate;

**(f)** record of the controller type, bleed rate, or bleed volume required in Subparagraphs (b), (c), (d), and (e) of Paragraph (4) of Subsection C on 20.2.50.122 NMAC.

**(g)** maintenance date and maintenance activity; and

**(h)** a record of the justification and certification required in Subparagraph (c) of Paragraph (4) of Subsection B of 20.2.50.122 NMAC.

**(6)** The owner or operator of a natural gas-driven pneumatic controller with a bleed rate greater than ~~six standard cubic feet per hour~~zero shall maintain a record documenting why a bleed rate greater than ~~six scf/hr~~zero is necessary, as required in Subsection B of 20.2.50.122 NMAC.

**(7)** The owner or operator shall maintain a record for a natural gas-driven pneumatic pump with an emission rate greater than zero and the associated pump number at the facility. The record shall include:

**(a)** for a natural gas-driven pneumatic diaphragm pump in operation less than 90 days per calendar year, a record for each day of operation during the calendar year.

**(b)** a record of any control device designed to achieve at least ninety-five percent emission reduction, including an evaluation or manufacturer specifications indicating the percentage reduction the control device is designed to achieve.

**(c)** records of the engineering assessment and certification by a qualified professional or inhouse engineer that routing pneumatic pump emissions to a control device, fuel cell, or process is technically infeasible.

**(8)** The owner or operator shall comply with the recordkeeping requirements in 20.2.50.112 NMAC.

**(9)** The owner or operator of a pneumatic controller with a bleed rate greater than zero shall comply with the requirements in Subsection F of 20.2.50.116 NMAC.

**E. Reporting requirements:** The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

[20.2.50.122 NMAC - N, XX/XX/2021]

**20.2.50.123 STORAGE VESSELS**

**A. Applicability:** New storage vessels with a PTE equal to or greater than two tpy of VOC and~~,~~ existing storage vessels ~~in multi-tank batteries~~ with a PTE equal to or greater than three tpy of VOC~~, and existing storage vessels in single tank batteries with a PTE equal to or greater than four tpy of VOC~~ are subject to the requirements of 20.2.50.123 NMAC. Storage vessels in multi-tank batteries manifolded together such that all vapors are shared between the headspace of the storage vessels and are routed to a common outlet or endpoint may determine an individual storage vessel PTE by averaging the emissions across the total number of storage vessels.

**B. Emission standards:**

**(1)** An existing storage vessel subject to this Section shall have a combined capture and control of VOC emissions of at least ninety-five percent according to the following schedule. If a combustion control device is used, the combustion device shall have a minimum design combustion efficiency of ninety-eight percent.

**(a)** By January 1, 2025, an owner or operator shall ensure at least 30% of the company's existing storage vessels are controlled;

**(b)** By January 1, 2027, an owner or operator shall ensure at least an additional 35% of the company's existing storage vessels are controlled; and

**(c)** By January 1, 2029, an owner or operator shall ensure the company's remaining existing storage vessels are controlled.

**(2)** A new storage vessel subject to this Section shall have a combined capture and control of VOC emissions of at least ninety-five percent upon startup. If a combustion control device is used, the combustion device shall have a minimum design combustion efficiency of ninety-eight percent.

**(3)** The emission standards in Subsection B of 20.2.50.123 NMAC cease to apply to a storage vessel if the actual annual VOC emissions decrease to less than two tpy.

**(4)** If a control device is not installed by the date specified in Paragraphs (1) and (2) of Subsection B of 20.2.50.123 NMAC, an owner or operator may comply with Subsection B of 20.2.50.123 NMAC by shutting in the well supplying the storage vessel by the applicable date, and not resuming production from the well until the control device is installed and operational.

**(5)** The owner or operator of a new or existing storage vessel with a thief hatch shall ensure that the thief hatch is capable of opening sufficiently to relieve overpressure in the vessel and to automatically close once the vessel overpressure is relieved. Any pressure relief device installed must automatically close once the vessel overpressure is relieved.

**(6)** An owner or operator complying with Paragraphs (1) and (2) of Subsection B of 20.2.50.123 NMAC through use of a control device shall comply with the control device operational requirements in 20.2.50.115 NMAC.

**C. Storage vessel measurement requirements:** Owners and operators of ~~new~~ storage vessels required to be controlled pursuant to this Part at well sites, tank batteries, gathering and boosting stations, or natural gas processing plants constructed on or after the effective date of this Part, and at any facilities that are modified on or after the effective date of this Part such that an additional controlled storage vessel is constructed to receive an anticipated increase in throughput of hydrocarbon liquids or produced water, shall use a storage vessel measurement system to determine the quantity and quality of liquids in the storage vessel(s). New tank batteries receiving an annual average of 200 bbls oil/day or more with available grid power shall be outfitted with a lease automated custody transfer (LACT) unit(s).

**(1)** The owner or operator shall keep thief hatches (or other access points to the vessel) and pressure relief devices on storage vessels closed and latched during activities to determine the quantity of liquids in the storage vessel(s)~~, except as necessary for custody transfer~~. Tank batteries equipped with LACT units shall use the LACT unit measurements in lieu of field testing of quantity and quality except in case of malfunction. Nothing in this paragraph shall be construed to prohibit the opening of thief hatches, pressure relief devices, or any other openings or access points to perform maintenance or similar activities designed to ensure the safety or proper operation of the storage vessel(s) or related equipment or processes. Where opening a thief hatch is necessary, owners and operators of new and existing storage vessels shall minimize the time the thief hatch is open.

***Comment on 20.2.50.123(C) NMAC:***

*The Community and Environmental Parties proposed addining subsection 20.2.50.123(C), based almost word-for-word on an amended to Regulation 7 adopted by the Colorado Air Quality Control Commission in December 2019. CAA Ex. 3 at 27 (citing 5 Colo. Code Regs. § 1001-9:D.II.C.4). Oxy supported this proposal and proposed it as well. 9 Tr. 2900:10-22. Oxy's expert, Mr. Holderman, testified that Oxy USA believes this addition is reasonable, workable, and likely to reduce emissions. 9 Tr. 2900:18-22.*

*The Environment Department adopted this proposal in large part. However, there are two important differences that render the Environment Department's proposal less protective than the Parties and Oxy's proposal. First, the Environment Department's proposal only requires use of a storage tank measurement system capable of measuring the quantity of liquid. The Parties propose a system that can also measure the* ***quality*** *of liquids. The evidence shows that a variety of alternative systems exist to measure quantity and sample the quality of the liquids in the vessel. See CAA Ex. 3 at 27 (examples of alternative systems that do not require venting include systems that comply with Chapter 18.2 of American Petroleum Institute Manual of Petroleum Measurement Standards, or by installing a Lease Automatic Custody Transfer unit). The evidence further shows that the Colorado proposal—which required a system to sample the quality of the liquid—is cost-effective. Id. Accordingly, substantial evidence supports the Parties' proposal to require a system capable of determining "the quantity and quality of liquids" in the storage vessel.*

*Second, the Environment Department's proposal would allow operators to open a thief hatch "as necessary for custody transfer." This provision is ambiguous and could be used to circumvent the intent of the rule because a purchaser's desire to measure the quantity and quality of the liquid manually could be deemed sufficient reason to open the thief hatch even though it is not technically necessary to open the hatch.*

**(2)** The owner or operator may inspect, test, and calibrate the storage vessel measurement system either semiannually, or as directed by the Bureau of Land Management (see 43 C.F.R. Section 374.6(b)(5)(ii)(B) (November 17, 2016)) or system manufacturer. Opening a thief hatch if required to inspect, test, or calibrate the vessel measurement system is not a violation of Paragraph (1) of this Subsection.

**(3)** The owner or operator shall install signage at or near the storage vessel that indicates which equipment and method(s) are used and the appropriate and necessary operating procedures for that system.

**(4)** The owner or operator shall develop and implement an annual training program for employees and third parties conducting activities subject to this Subsection that includes, at a minimum, operating procedures for each type of system.

**(5)** The owner or operator must make and retain the following records for at least two (2) years and make such records available to the department upon request:

**(a)** date of construction of the storage vessel or facility;

**(b)** description of the storage vessel measurement system used to comply with this Subsection;

**(c)** date(s) of storage vessel measurement system inspections, testing, and calibrations that require opening the thief hatch pursuant to Paragraph (~~3~~2) of this Subsection;

**(d)** manufacturer specifications regarding storage vessel measurement system inspections and/or calibrations, if followed pursuant to Paragraph (~~3~~2) of this Subsection; and

**(e)** records of the annual training program, including the date and names of persons trained.

**D. Monitoring requirements:** The owner or operator of a storage vessel shall:

**(1)** monthly, monitor, or calculate or estimate, the total monthly liquid throughput (in barrels) and the upstream separator pressure (in psig) if the storage vessel is directly downstream of a separator. When a storage vessel is unloaded less frequently than monthly, the throughput and separator pressure monitoring shall be conducted before the storage vessel is unloaded;

**(2)** conduct an AVO inspection on a weekly basis. If the storage vessel is unloaded less frequently than weekly, the AVO inspection shall be conducted before the storage vessel is unloaded;

**(3)** inspect the storage vessel monthly to ensure compliance with the requirements of 20.2.50.123 NMAC. The inspection shall include a check to ensure the vessel does not have a leak;

**(4)** prior to any monitoring event, the owner or operator shall date and time stamp the event, and the monitoring data entry shall be made in accordance with the requirements of this Part.

**(5)** comply with the monitoring requirements in 20.2.50.115 NMAC if using a control device to comply with the requirements in Paragraphs (1) and (2) of Subsection B of 20.2.50.123 NMAC; and

**(6)** comply with the monitoring requirements of 20.2.50.112 NMAC.

**E. Recordkeeping requirements:**

**(1)** Monthly, the owner or operator shall maintain a record for each storage vessel of the following:

**(a)** unique identification number and location (latitude and longitude);

**(b)** monitored, calculated, or estimated monthly liquid throughput;

**(c)** the upstream separator pressure, if a separator is present;

**(d)** the data and methodology used to calculate the actual emissions of VOC (tpy);

**(e)** the controlled and uncontrolled VOC emissions (tpy); and

**(f)** the type, make, model, and identification number of any control device.

**(2)** A record of liquid throughput shall be verified by dated liquid level measurements, a dated delivery receipt from the purchaser of the hydrocarbon liquid, the metered volume of hydrocarbon liquid sent downstream, or other proof of transfer.

**(3)** A record of the inspections required in Subsections C and D of 20.2.50.123 NMAC shall include:

**(a)** the date and time stamp, including GPS of the location, of the inspection;

**(b)** the person(s) conducting the inspection;

**(c)** a description of any problem observed during the inspection; and

**(d)** a description and date of any corrective action taken.

**(4)** An owner or operator complying with the requirements in Paragraphs (1) and (2) of Subsection B of 20.2.50.123 NMAC through use of a control device shall comply with the recordkeeping requirements in 20.2.50.115 NMAC.

**(5)** The owner or operator shall comply with the recordkeeping requirements in 20.2.50.112 NMAC.

**E.** **Reporting requirements:**

**(1)** An owner or operator complying with the requirements in Paragraphs (1) and (2) of Subsection B of 20.2.50.123 NMAC through use of a control device shall comply with the reporting requirements in 20.2.50.115 NMAC.

**(2)** The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

[20.2.50.123 NMAC - N, XX/XX/2021]

**20.2.50.124 WELL WORKOVERS**

**A.** **Applicability:** Workovers performed at oil and natural gas wells are subject to the requirements of 20.2.50.124 NMAC as of the effective date of this Part.

**B**. **Emission standards:** The owner or operator of an oil or natural gas well shall use the following best management practices during a workover to minimize emissions, consistent with the well site condition and good engineering or operational practices:

**(1)** reduce wellhead pressure before blowdown to minimize the volume of natural gas vented;

**(2)** monitor manual venting at the well until the venting is complete; and

**(3)** route natural gas to the sales line, if possible.

**C.** **Monitoring requirements:**

**(1)** The owner or operator shall monitor the following parameters during a workover:

**(a)** wellhead pressure;

**(b)** flow rate of the vented natural gas (to the extent feasible); and

**(c)** duration of venting to the atmosphere.

**(2)** The owner or operator shall calculate the estimated volume and mass of VOC vented during a workover.

**(3)** The owner or operator shall comply with the monitoring requirements in 20.2.50.112 NMAC.

**D**. **Recordkeeping requirements:**

**(1)** The owner or operator shall keep the following record for a workover:

**(a)** unique identification number and location (latitude and longitude) of the well;

**(b)** date the workover was performed;

**(c)** wellhead pressure;

**(d)** flow rate of the vented natural gas to the extent feasible, and if measurement of the flow rate is not feasible, the owner or operator shall use the maximum potential flow rate in the emission calculation;

**(e)** duration of venting to the atmosphere;

**(f)** description of the best management practices used to minimize release of VOC emissions before and during the workover;

**(g)** calculation of the estimated VOC emissions vented during the workover based on the duration, volume, and gas composition; and

**(h)** the method of notification to the public and proof that notification was made to the affected public.

**(2)** The owner or operator shall comply with the recordkeeping requirements in 20.2.50.112 NMAC.

**E.** **Reporting requirements**

**(1)** The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

**(2)** If it is not feasible to prevent VOC emissions from being emitted to the atmosphere from a workover event, the owner or operator shall notify by certified mail, or by other effective means of notice so long as the notification can be documented, all residents located within one-quarter mile of the well of the planned workover at least three calendar days before the workover event.

**(3)** If the workover is needed for routine or emergency downhole maintenance to restore production lost due to upsets or equipment malfunction, the owner or operator shall notify all residents located within one-quarter mile of the well of the planned workover at least 24 hours before the workover event.

[20.2.50.124 NMAC - N, XX/XX/2021]

**20.2.50.125 SMALL BUSINESS FACILITIES**

**A. Applicability:** Small business facilities as defined in this Part are subject to the requirements of 20.2.50.125 NMAC.

**B. General requirements:**

**(1)** The owner or operator shall ensure that all equipment is operated and maintained consistent with manufacturer specifications, and good engineering and maintenance practices. The owner or operator shall keep manufacturer specifications and maintenance practices on file and make them available to the department upon request.

**(2)** The owner or operator shall calculate the VOC and $NO_x$ emissions from the facility on an annual basis. The calculation shall be based on the actual production or processing rates of the facility.

**(3)** The owner or operator shall maintain a database of company-wide VOC and $NO_x$ emission calculations for all subject facilities and associated equipment and shall update the database annually.

**(4)** The owner or operator shall comply with Paragraph (9) of Subsection A of 20.2.50.112 NMAC if requested by the department.

**C. Monitoring requirements:** The owner or operator shall comply with the requirements in Subsections C or D of 20.2.50.116 NMAC.

**D. Repair requirements:** The owner or operator shall comply with the requirements of Subsection E of 20.2.50.116 NMAC.

**E. Recordkeeping requirements:** The owner or operator shall maintain the following electronic records for each facility:

**(1)** annual certification that the small business facility meets the definition in this Part;

**(2)** calculated annual VOC and $NO_x$ emissions from each facility and the company-wide annual VOC and $NO_x$ emissions for all subject facilities; and

**(3)** records as required under Subsection F of 20.2.50.116 NMAC.

**F. Reporting requirements:** The owner or operator shall submit to the department an initial small business certification within sixty days of the effective date of this Part, and by March 1 each calendar year thereafter. The certification shall be made on a form provided by the department. The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

**G. Failure to comply with 20.2.50.125 NMAC:** Notwithstanding the provisions of Section 20.2.50.125 NMAC, a source that meets the definition of a small business facility can be required to comply with the other Sections of 20.2.50 NMAC if the Secretary finds based on credible evidence that the source (1) presents an imminent and substantial endangerment to the public health or welfare or to the environment; (2) is not being operated or maintained in a manner that minimizes emissions of air contaminants; or (3) has violated any other requirement of 20.2.50.125 NMAC.

[20.2.50.125 NMAC - N, XX/XX/2021]

**20.2.50.126 PRODUCED WATER MANAGEMENT UNITS**

**A. Applicability:** Produced water management units as defined in this Part and their associated storage vessels are subject to 20.2.50.126 NMAC and shall comply with these requirements no later than 180 days after the effective date of this Part.

**B. Emission standards:**

**(1)** The owner or operator shall use good operational or engineering practices to minimize emissions of VOC from produced water management units (PWMU) and their associated storage vessels.

**(2)** The owner or operator shall not allow any transfer of untreated produced water to a PWMU without first processing and treating the produced water in a separator and/or storage vessel to minimize entrained hydrocarbons.

**(3)** Within two years of the effective date of this Part for storage vessels associated with existing PWMUs, or upon startup for storage vessels associated with new PWMUs, the owner or operator shall either:

**(a)** control such storage vessels in accordance with the requirements of Section 20.2.50.123 NMAC that are applicable to tank batteries; or

**(b)** submit a VOC minimization plan to the department demonstrating that controlling VOC emissions from storage vessels associated with the PWMU in accordance with the requirements of Section 20.2.50.123 NMAC is technically infeasible without supplemental fuel. The plan shall state the good operational or engineering practices used to minimize VOC emissions. The plan shall be enforceable by the department upon submission. The department may require revisions to the plan, and must approve any proposed revisions to the plan.

**C. Monitoring requirements:** The owner or operator shall:

**(1)** develop a protocol to calculate the VOC emissions from each PWMU. The protocol shall include at a minimum: produced water throughput monitoring, semi-annual sampling and analysis of the liquid composition, hydrocarbon measurement method(s), representative sample size, and chain of custody requirements.

**(2)** calculate the monthly total VOC emissions in tons from each unit with the first month of emission calculations beginning within 180 days of the effective date of this Part;

**(3)** monthly, monitor the best management and good operational or engineering practices implemented to reduce emissions at each unit to ensure and demonstrate their effectiveness;

**(4)** upon written request by the department, sample the PWMU to determine the VOC content of the liquid; and

**(5)** comply with the monitoring requirements of 20.2.50.112 NMAC.

**D. Recordkeeping requirements:**

**(1)** The owner or operator shall maintain the following electronic records for each PWMU:

**(a)** unique identification number and UTM coordinates of the PWMU;

**(b)** the good operational or engineering practices used to minimize emissions of VOC from the unit;

**(c)** the protocol, and the results of the sampling conducted in accordance with the protocol; and

**(d)** a record of the annual total VOC emissions from each unit.

**(2)** The owner or operator shall comply with the recordkeeping requirements in 20.2.50.112 NMAC.

**E. Reporting requirements:** The owner or operator shall comply with the reporting requirements in 20.2.50.112 NMAC.

[20.2.50.126 NMAC - N, XX/XX/2021]

**20.2.50.127 REQUIREMENTS FOR FLOWBACK VESSELS AND PREPRODUCTION OPERATIONS**

**A. Applicability:** Wells undergoing recompletions and new wells being completed at an existing wellhead site are subject to the requirements of 20.2.50.127 NMAC one year after the effective date of this Part. New wells constructed at a new wellhead site that commence completion or recompletion after the effective date of this Part are subject to the requirements of 20.2.50.127 NMAC.

**B. Emissions standards:**

**(1)** The owner or operator of a well must collect and control emissions from each flowback vessel on and after the date flowback is routed to the flowback vessel by routing emissions to an operating control device that achieves a hydrocarbon control efficiency of at least 95 percent. If a TO or ECD is used, it must have a design destruction efficiency of at least 98 percent for hydrocarbons.

**(a)** the owner or operator shall ensure that a control device used to comply with emission standards in the Part operates as a closed vent system that captures and routes VOC emissions to the control device, and that unburnt gas is not directly vented to the atmosphere.

**(b)** flowback vessels must be inspected, tested, and refurbished where necessary to ensure the flowback vessel is in compliance with 20.2.50.127.B(1)(a) NMAC prior to receiving flowback.

**(c)** the owner or operator shall use a vessel measurement system to determine the quantity of liquids in the flowback vessel(s).

**(i)** Thief hatches or other access points to the flowback vessel must remain closed and latched during activities to determine the quantity of liquids in the flowback vessel(s).

**(ii)** Opening the thief hatch or other access point if required to inspect, test, or calibrate the vessel measurement system or to add biocides or chemicals is not a violation of 20.2.50.127.B(1)(a) NMAC.

**C. Monitoring:**

**(1)** Owners and or operators of a well with flowback that begins on or after the effective date of 20.2.50 NMAC, must conduct daily visual inspections of the flowback vessel and any associated equipment, including

**(a)** visual inspection of any thief hatch, pressure relief valve, or other access point to ensure that they are closed and properly seated.

**(b)** visual inspection or monitoring of the control device to ensure that it is operating.

**(c)** visual inspection of the control device to ensure that the valves for the piping from the flowback vessel to the control device are open.

**D. Recordkeeping:**

**(1)** The owner or operator of each flowback vessel subject to Paragraph (1) of Subsection B of Section 20.2.50.127 NMAC must maintain records for a period of five (5) years and make them available to the the department upon request, including

**(a)** the API number of the well and the associated facility location, including latitude and longitude coordinates.

**(b)** the date and time of the onset of flowback.

**(c)** the date and time the flowback vessels were permanently disconnected, if applicable.

**(d)** the date and duration of any period where the control device is not operating.

**(e)** records of the inspections required in Subsection C of Section 20.2.50.127 NMAC, including the time and date of each inspection, a description of any problems observed, a description and date of any corrective action(s) taken, and the name of the employee or third party performing corrective action(s).

***Comment on 20.2.50.127 NMAC:***

*The Community and Environmental Parties and Oxy support the completions/recompletions proposal. The Environment Department took no position, citing lack of expertise, and recommended the EIB decide the issue based on testimony of the other parties. 10 Tr. 3380:24-3381:9.*

*The completions/recompletions proposal requires operators to route initial flowback to enclosed, controlled flowback vessels during completion and recompletion of wells to reduce emissions during initial flowback.*

*The proposal is beneficial because:*

1. *There are substantial uncontrolled emissions during initial flowback. EDF Ex. EE at 26-27, Tables 12 & 13.*
2. *The proposal is modeled after rules adopted in 2020 by the Colorado Air Pollution Control Commission and the Colorado Oil and Gas Conservation Commission with one significant change, which is deletion of language requiring flowback vessels to be "vapor tight." This change was made to ensure that operators install a pressure relief system to prevent dangerous static buildup and discharge. 10 Tr. 3232:16-3233:5; 10 Tr. 3307:1-6.*
3. *EDF witness Tom Alexander and Oxy witness Danny Holderman, an engineer, have managed completions for major oil and gas companies and testified in support of the proposal and that implementation would be safe. 10 Tr. 3232:3-3234:5, -3232:22-3233:5; -3307:1-6.*
4. *NMOGA's witness John Smitherman attempted to rebut Mr. Alexander and Mr. Holderman's testimony, but his testimony was based on his incorrect characterization that the proposal requires vessels to be "vapor tight" and he gave no testimony that the actual proposal, which allows for a pressure relief system, would be unsafe. 10 Tr. 3319:25-3320:3321:6.*
5. *EDF analyzed the costs to implement the proposal using a cost-benefit analysis from the Colorado Department of Public Health and the Environment and New Mexico specific data, and found the proposal to be a cost effective means of mitigating flowback, EDF Ex. SS at 15; EDF Ex. UU at 14; 10 Tr. 3283:1-10, as did Mr. Alexander who found the costs "are very, very reasonable." EDF Ex. UU at 13-14; 10 Tr. 3229:14-3230:17.*

**20.2.50.128 PROHIBITED ACTIVITY AND CREDIBLE EVIDENCE**

**A.** Failure to comply with the emissions standards, monitoring, recordkeeping, reporting or other requirements of this Part within the timeframes specified shall constitute a violation of this Part subject to enforcement action under Section 74-2-12 NMSA 1978.

**B.** If credible evidence or information obtained by the department or provided to the department by a third party indicates that a source is not in compliance with the provisions of this Part that evidence or information may be used by the department for purposes of establishing whether a person has violated or is in violation of this Part.

**HISTORY OF 20.2.50 NMAC:** [**RESERVED**]